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Roxana to Build Gulf Coast Refinery; Other Plants Rumored

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON, Dec. 17

EVENTUAL construction of a major refinery on the Texas Gulf coast by Roxana Petroleum Corp., subsidiary of the Shell-Union Oil Corp., was indicated, Dec. 17, when Carl Barker of the Roxana confirmed over long-distance telephone from St. Louis that option had been taken on a 600-acre plant site on the Houston ship channel.

Another site, in Beaumont district, consisting of 600 acres of Gilbert land, above Port Arthur, is also being considered; but no option has been taken on it.

The Houston site under option is in the Deer Park area, close to the Sinclair Refining Co.'s plant and down the ship channel from smaller refineries of the district.

Mr. Barker would not say that the Roxana had any immediate plans for construction of a refinery on the Gulf coast, but the company's action in authorizing purchase of the plant site indicates clearly that eventually it proposes construction of major character.

ROXANA is going ahead actively in exploring the Gulf coast territory, where it owns two proved salt domes in their entirety and other prospective acreage. One of the salt domes, known as the Allen, in Brazoria county, is already proved for production. The other, on the Clemmons state farm, up the river from the Allen, is proved structurally but remains unproductive.

So far as known the Roxana's impending purchase of a Gulf coast refinery site will not change plans of the companion Shell Pipeline Corp., to build a west Texas main outlet that will hook-up with its Mid-Continent trunk system in the Healdton, Okla., district.

Pipe is already rolling and some construction work is already under way connecting up the Roxana-Shell properties in the counties of Crane, Upton and Winkler; also confirmation comes from Fort Worth of the purchase by Roxana of 1,000,000 barrels of University field crude produced on the Cowden excess survey strip in Crane county by the Landreth Production Co. Terms of the purchase figure out 55 cents a barrel for the crude, as the tankage is valued at 40 cents a barrel and the total consideration amounted to 95 cents a barrel.

UNTIL the Shell pipeline from west Texas is built to its connection with the existing system in the Healdton district, and until the Roxana properties in the Crane-Upton-Winkler region are developed more actively, shipments will be made in tank cars from the Landreth storage to supply crude requirements of the Roxana refineries at Wood River, Ill., and Hammond, Ind.

Eventual building of the Roxana's Gulf coast refinery will round out the operations in this country of that subsidiary of the Royal Dutch-Shell group with large plants at tactical positions both in the interior and at seaboard. With the exception of the Pacific coast, where the Shell-Union operates through the Shell Co. of California, its refineries are located in the interior of the United States. New Orleans Refining Co., operating a plant in the lower Mississippi river district, belongs to the Royal Dutch-Shell group but is not a subsidiary of the Shell-Union, which is the holding company for all other Royal Dutch-Shell interests in this country.

THERE is no confirmation of rumors circulated over a period of months that the Transcontinental Oil Co., of Tulsa and Pittsburgh, would purchase a Houston ship channel refinery site and build a pipeline from west Texas to the Gulf coast.

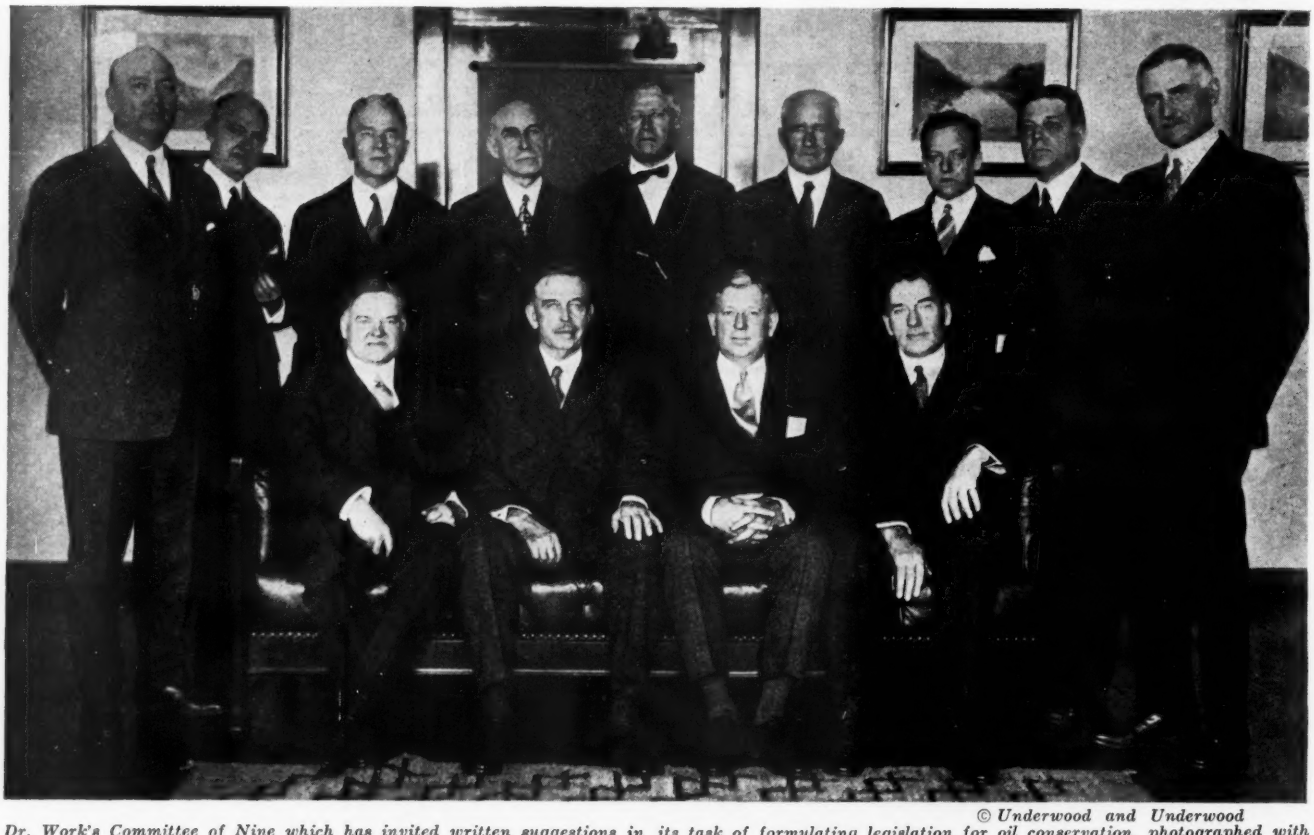
The Transcontinental blocked the Yates field acreage, in Pecos county, which the Mid-Kansas Oil & Gas Co. (subsidiary of Ohio Oil Co.) operates for their joint account. Transcontinental some months ago made survey for a line south from Yates field to the Southern Pacific railroad, in Val Verde county, but never went ahead with construction.

Recurring rumors of possible trunk pipeline construction to the Gulf coast by Transcontinental have never received confirmation.

THE purchase of proved and semi-proved properties in west Texas of the Pure Oil Co., by The Texas Co., has been followed by announcement by the last mentioned of a field pipeline construction program. The Texas Co. will connect its newly acquired properties in the Hendricks field, Winkler county, with the McCamey district of Crane-Upton counties, by construction of 80 miles of 8-inch system.

No plans have been made by The

Dr. Work's Committee of Nine and Four Cabinet Members



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Dr. Work's Committee of Nine which has invited written suggestions in its task of formulating legislation for oil conservation, photographed with four cabinet members in session at Washington last week. Seated left to right, are Secretary of Commerce Hoover, Secretary of Interior Work, Secretary of War Davis, and Secretary of the Navy Wilbur. Standing, left to right, are W. S. Farish, president of Humble Oil & Refining Co.; James A. Veasey, attorney for Carter Oil Co.; Henry M. Bates, law professor at the University of Michigan; Edward C. Finney, assistant secretary of the interior; T. A. O'Donnell, chairman of the board of the California Petroleum Corp.; J. Edgar Pew, vice-president of the Sun Oil Co.; A. F. Myers, member Federal Trade Commission; Walter F. Brown, assistant secretary of commerce; Warren Olney, Jr., San Francisco attorney

Texas Co. for immediate construction of trunk outlets from west Texas, but eventually such a program will be necessary. In the meantime, The Texas Co. will make tank car shipments of crude over the Kansas City, Mexico & Orient, from McCamey, where it gets a freight advantage over other railroads.

Details of the Pure-Texas deal disclose that a total of 3017 acres in the Crane-Upton, Winkler and Pecos areas were transferred for an unnamed consideration. Five strings of tools, all lease equipment, camps and warehouses were sold, together with two 55,000-barrel steel storage tanks. The oil stored in one of these tanks was not included. Pure retains roundly 300,000 acres of wildcat leaseholds in the general west Texas territory.

The explanation is made that the Pure did not care to develop at this time properties promising to produce large quantities of oil it was not prepared to handle through its own facilities. Its operation of the properties would have required new plant construction for handling sulfur crude and its policy is said to be to avoid the building of trunk pipeline facilities in Texas at present.

"Get Acquainted" Move Started by Slick

TULSA, Dec. 17.—Oil producers see too little of each other; there should be closer acquaintance and hence closer cooperation. This is the opinion of Thomas B. Slick, Independent operator. With Mr. Slick, action quickly follows thought. Therefore, to begin the establishment of better acquaintance, he is inviting oil producers to be his guests at a special dinner at the Tulsa Country club, Jan. 17. The time will be evening and the affair will be informal.

Mr. Slick wants to miss no one. He asked NATIONAL PETROLEUM NEWS to say that if any operator or company in Tulsa or vicinity is overlooked on the invitations, he will appreciate it if the one overlooked will write to T. B. Slick about it. The country club space is limited, but Mr. Slick intends to have a representative from each producing company at his dinner.

No business will be brought before the meeting and whatever discussion takes place will be informal and between neighbor and neighbor. The idea has been growing with Mr. Slick for some time. He observed that the numerous Seminole operators' meetings held during late 1926 and throughout 1927 resulted in better understanding. He believes that it would be a splendid thing for producers to get together regularly and he hopes the movement he is launching will be continued.

Coming Meetings

Michigan Independent Oil Men's Association, Statler Hotel, Detroit, Feb. 2, 3.

Iowa Independent Oil Men's Association, Savory Hotel, Des Moines, Feb. 8, 9.

Illinois Petroleum Marketers Association, Hotel Abraham Lincoln, Springfield, Ill., Feb. 15, 16.

Ohio Petroleum Marketers Association Spring Convention and Exhibit Exposition, Neil House, Columbus, O., Feb. 22, 23, 24.

American Oil Men's Association, Hotel Stevens, Chicago, March 6, 7 and 8.

American Oil Burner Association, Hotel Stevens, Chicago, April 3, 4, 5, 1928.

National Petroleum Association, Cambridge Springs, Pa., April 19, 20.

Making Neglected Refinery By-Products Pay a Good Profit

By Paul Truesdell
N. P. N. STAFF WRITER

CLEVELAND, Dec. 15

THE White Star Refining Co., headquarters Detroit, makes more than $10,000 a month selling the fixed gas from three Dubbs cracking units and other equipment in its refinery at Wood River, Ill., to the Laclede Gas Co. which supplies manufactured illuminating gas to nearby St. Louis.

Ten thousand dollars is a neat addition to the monthly revenue of anybody's refinery, especially a 5000-barrel plant such as the White Star refinery. In many plants it might mean the difference between writing up the monthly record of the company's business in black ink or in red.

To get down to actual figures, the meter through which the stripped gas (they get all the gasoline out of it before they let it go) leaves the White Star plant, at midnight Nov. 30, showed a total of 32,000,000 cubic feet of gas had gone through it into the lines of the gas company during the preceding 30 days. This total, multiplied by 32 cents, the price the gas company pays per 1000 cubic feet, makes the pleasing sum of $10,240.

The Laclede company seems to be one that has awakened to the fact brought out and repeated by refinery technologists several times the past year or two, to-wit, that a company manufacturing water gas can buy from a refinery fixed hydrocarbon gas to enrich its product more cheaply than it can buy gas oil and gasify it for enrichment.

At the American Petroleum Institute meeting just held in Chicago, Luis de Florez, consulting engineer, expressed the opinion that the commercial success of vapor phase cracking depends upon the possibility of selling the fixed gas resulting as a byproduct of the operation to a gas or chemical company at a good price.

Water gas contains only about 500 to 600 B.t.u. to the 1000 cubic feet. State and city governments usually demand a B.t.u. content of around 900 to 1000 per 1000 cubic feet of gas. Gas made by cracking petroleum oil contains from 1200 B.t.u. upward. Hence the practice of buying gas oil and cracking it to furnish a gas rich enough to bring the water gas up to the required B.t.u. standard.

Buying the gas from refineries is an old story to the Laclede company. It also takes the output from the huge Wood River refineries of the Standard of Indiana and the Roxana Petroleum Corp., which almost elbow the White Star plant on either side. Selling the fixed gas, however, is unusual among small refineries, but it is an example of how the White Star plant operates. Another feature is that the refinery has no coke pile. The coke from the Dubbs units is sorted into three sizes, lumps, nut and breeze and sold as fast as made. Two or three days after the reaction chambers are cleaned out you could hardly fill a cigar box with the coke left on the ground. The lump brings $7.25 a ton, and the nut $6.50 a ton for domestic use, while industrial plants take all the breeze the refinery can make at $2 a ton.

The plant runs on Mid-Continent crude, bought from the Prairie Oil & Gas Co. and delivered by pipe line.

When J. B. Edwards took charge of the refinery as general manager last June things began to happen. He was a refinery operating man of long experience, having been for years general manager of the big refinery of the Tide Water Oil Co. at Bayonne, N. J.

He found that the White Star plant had been laid out on level about 2½ feet too low, so that the ground was soft much of the time and actually swampy in wet weather. He found a battery of six old shell stills of conventional design, capable of handling about 2000 barrels of crude a day, and two Dubbs units.

About the first thing Mr. Edwards did was to design and lay out a battery of five of what he calls "tubular shell stills." These are shell stills with internal flues like a return tubular boiler. Mr. Edwards patterned them after similar units he had designed and constructed at the Tide Water plant. They were built by the Biggs Boiler works. Each still is equipped with a Badger bubble tower.

Each still is 8 by 30 feet, of riveted construction. Twenty 4-inch tubes run the full length of the still on the inside, the tube ends being expanded like boiler tubes into each end of the still. The tubes are all in the bottom half of the still where they are submerged in the oil. The sum of the area of the heating surface on the tubes equals the area of the still bottom and sides exposed to the fire so that, by the use of the tubes, the heating surface is just doubled. An accompanying photograph shows how the tubes are expanded into the ends of the still.

As built there is a breeching in-

Practical Economies at White Star Refinery

Selling fixed gas from three Dubbs units for $10,000 per month.

* * * * *

Recovers 4,000 gallons per day absorption gasoline, worth $7,300 per month.

* * * * *

Runs 5,000 barrels per day of crude oil with 78 persons. Plant last June was running 2,000 barrels with 121 persons.

* * * * *

Gets double heating surface and high fuel economy by building shell stills with internal flues.

* * * * *

Keeps coke from Dubbs stills sold up. Lump size brings $7.25 per ton; nut size $6.50, breeze $2.00 per ton.

* * * * *

Sells all salable Dubbs fuel oil and burns non-salable residuum as refinery fuel.

* * * * *

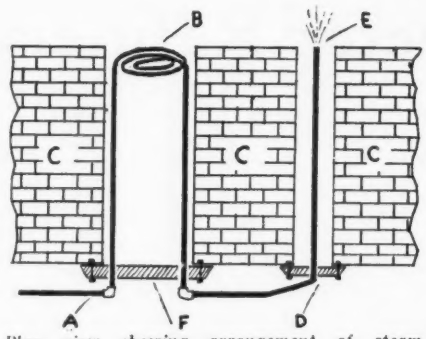
Super heats steam for atomizing oil to burners in still furnaces, thereby reducing steam consumption and improving temperature control.

cluded in the setting of each still at the end farthest from the firing front. Instead of building the still flues at the rear, that is, the end away from the burner, the flues and individual stacks are built at the same end in which the burner is installed.

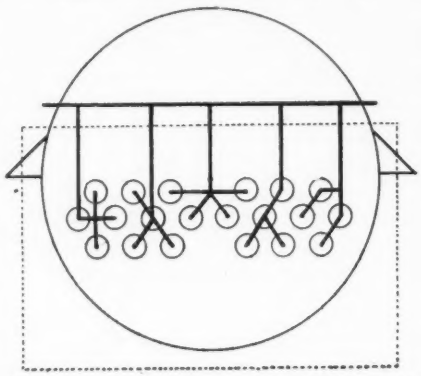
IN THE ordinary shell still, of course, the products of combustion travel along the still bottom from the burner in front to the back, where they pass downward into the flue and out to the stack. In Mr. Edwards' still, the gases travel along the still bottom, enter the breeching at the rear end, travel back to the front of the still through the 20 internal tubes and pass thence into another breeching and out the stack, thus giving the products of combustion two passes through the heating zone and making highly efficient heat transfer.

The flue which leads the spent products of combustion into the stack enters the latter about 16 feet above the ground. The lower part of the stack, that part reaching from the ground to the point where the flue enters, is of enlarged section, as shown in the photograph and serves as settling chamber for the soot which comes out with the gases, and which is periodically blown out of the still tubes, as will be explained later.

An interesting feature of the stills is the method of firing them. In each still furnace is installed an Airoil burner with the smallest sized tip made. The oil is injected with steam and the steam is superheated on the way to the burner by means of an ingenious homemade superheater. This consists of about 30 feet of three-eighths-inch pipe set in the front wall of each still setting. The steam pipe enters the front of the setting through a little tunnel running clear through the wall, which is 27 inches thick.



Plan view showing arrangement of steam superheater in still furnace. A is steam pipe, B coil, C front furnace wall, D cover plate over burner opening, E burner tip F cover plate over superheater opening

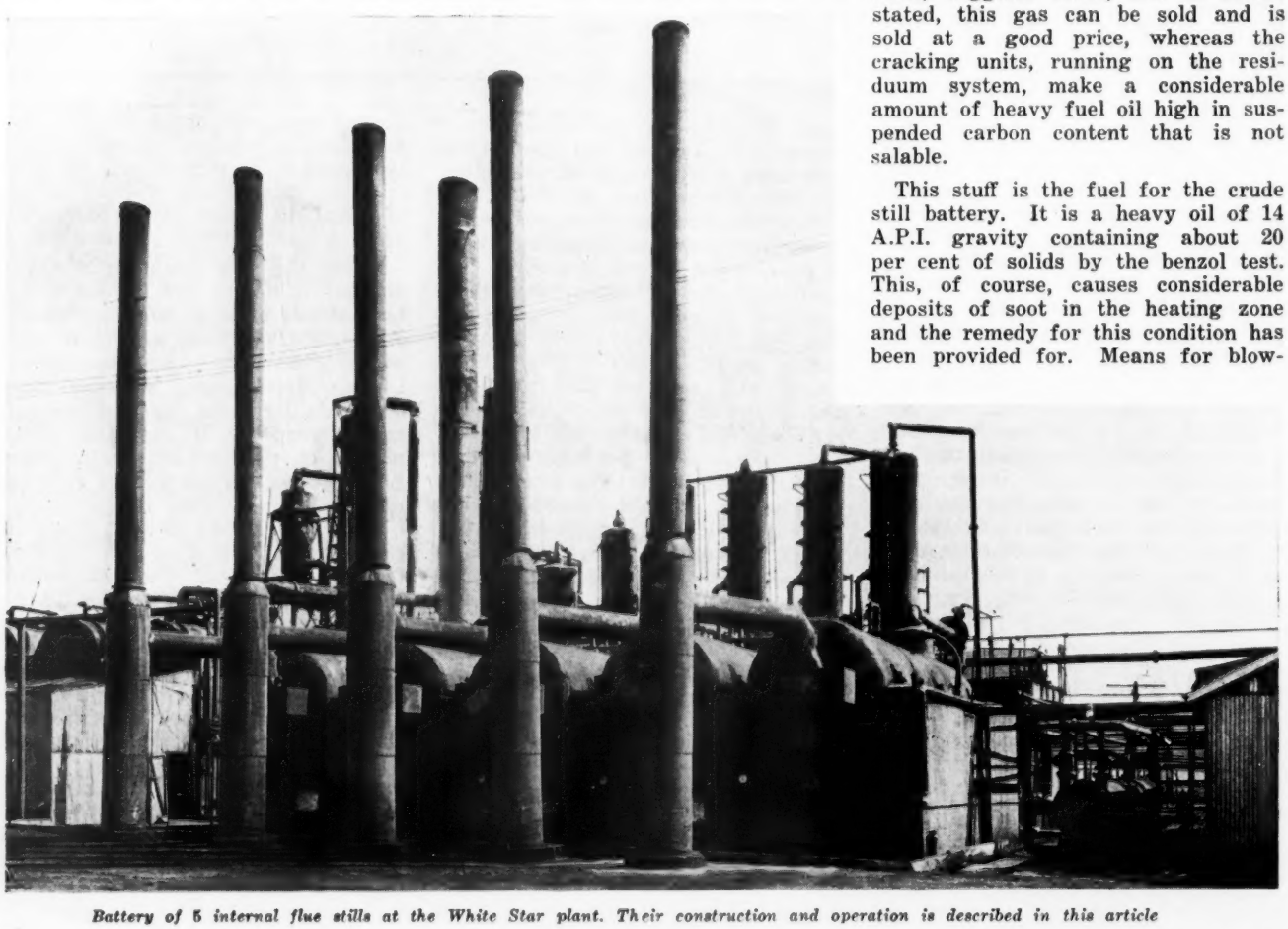

End view of one of the stills at White Star plant showing arrangement of steam header, spiders and nozzles for blowing out the internal tubes in the stills

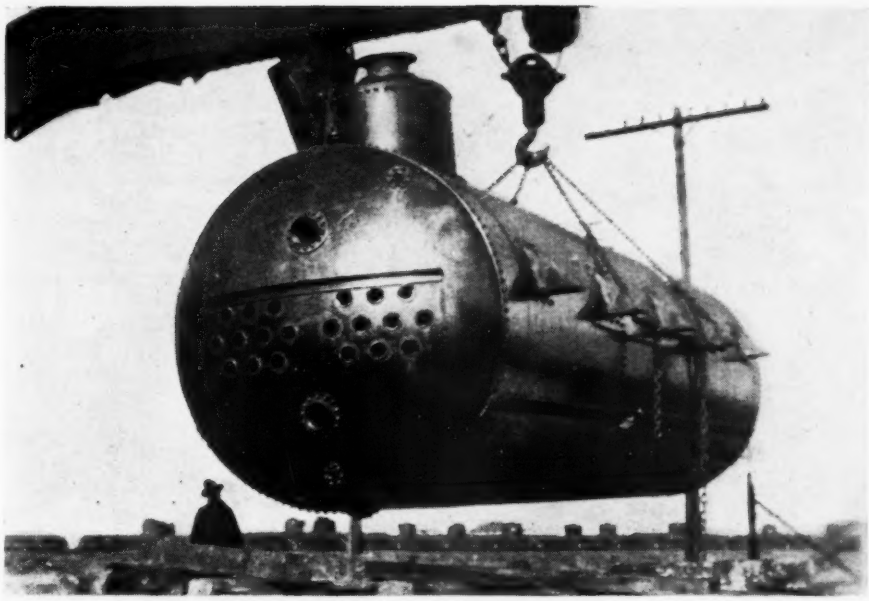
Near the fire side of the wall, the pipe is bent into a flat coil and returns on itself to the outside of the still whence it runs to another opening in the still front in which the burner is placed. A drawing herewith gives an idea of the superheater and burner arrangement.

STEAM passing through this coil on the way to the burner is given from 75 to 100 degrees of superheat by the radiant heat of the furnace. The coil is kept slightly back from the inside face of the furnace wall, so that it is not burned up by direct exposure to the fire. Superheating the steam, Mr. Edwards says, tends to reduce the consumption of steam for atomizing the oil and also to keep the pressure steady, which would be hard to do otherwise, with the numerous drags on the steam supply. There are no superheaters in the boiler house.

Of course, the use of the fixed gas from the Dubbs cracking stills and the other stripped gas from other departments of the plant, as fuel under the stills, boilers and cracking stills, suggests itself, but as before stated, this gas can be sold and is sold at a good price, whereas the cracking units, running on the residuum system, make a considerable amount of heavy fuel oil high in suspended carbon content that is not salable.

This stuff is the fuel for the crude still battery. It is a heavy oil of 14 A.P.I. gravity containing about 20 per cent of solids by the benzol test. This, of course, causes considerable deposits of soot in the heating zone and the remedy for this condition has been provided for. Means for blow-


Battery of 5 internal flue stills at the White Star plant. Their construction and operation is described in this article



One of the new stills being hoisted into position. Ends of internal flues are shown

ing the tubes clean with steam is arranged as follows:

Along the rear of the still battery just above the breechings runs a 1-inch steam header. A take off line from this header runs inside the breeching of each still. The take off line is connected to five spiders, each spider carrying four steam nozzles, so there is one steam nozzle opposite the open end of each of the 20 tubes in the still.

THE steam nozzles are designed with flaring mouths, so that the steam impinges on the sides of the tubes all around as it travels through, carrying the soot with it. The soot is blown through the flue and settles in the chamber at the base of the stack as previously described. At the ground level the stacks are fitted with clean-out doors through which the soot is periodically removed.

It is the practice to blow out these tubes three times in an 8-hour shift. With clean fuel oil, or gas, Mr. Edwards says, very infrequent blowing would suffice to keep the tubes clean. However, as it is, the blowing is accomplished with no interruption to operation of the still.

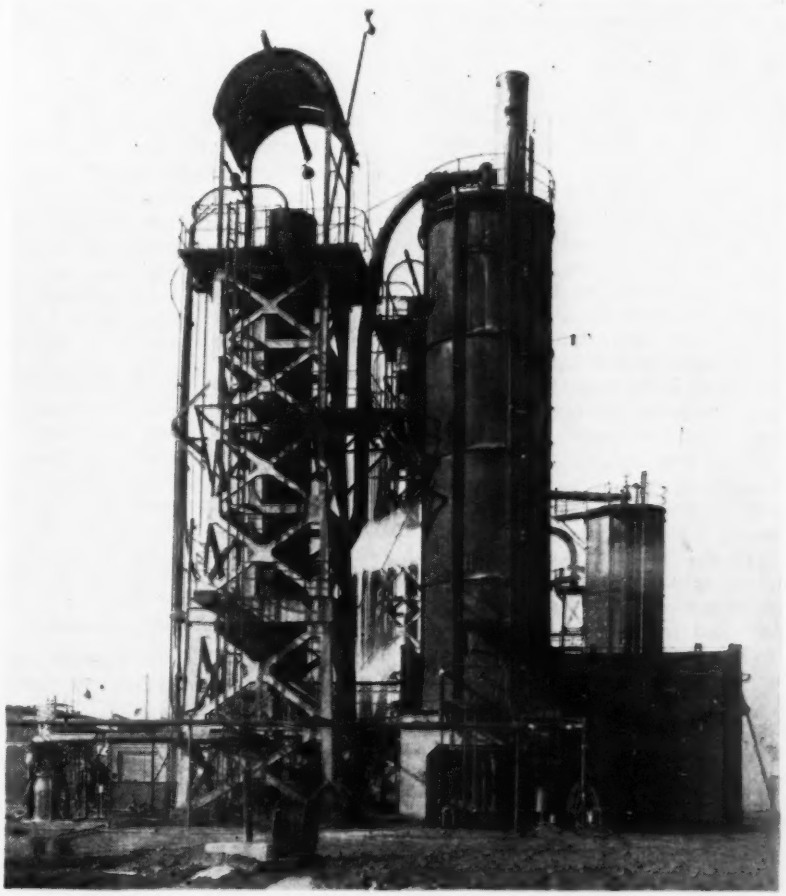
A good part of the distillation of the crude is accomplished with waste heat abstracted from the bottoms leaving No. 5 still of the battery. This is accomplished by means of two liquid-to-liquid heat exchangers connected in series. The residuum from No. 5 still flows continuously into No. 2 heat exchanger at about 600 degrees Fahr. The exchangers are of the shell and tube type. No. 2 heat exchanger is set higher than No. 1, so that the oil continuously overflows by gravity from No. 2 to No. 1.

Crude from storage at atmospheric temperature is continuously pumped through the tubes in No. 1 heat exchanger, countercurrent to the hot bottoms in the shell and is heated to about 185 to 190 degrees Fahr. Thence the crude goes into a vertical tank or settling chamber, where the calcium and magnesium chlorides settle out, 185 to 190 degrees having been determined as the critical temperature for the settling out of these substances from Mid-Continent crude. Having gotten rid of the chlorides, Mr. Edwards is not troubled by corrosion of his equipment from hydrochloric acid, which is formed by hydrolysis in many refineries where steam is used in the refining operation.

Mr. Edwards is now feeding ammonia into the crude charging line to eliminate hydrogen sulfide, but he intends to try out the suggestion made by Brian Mead of the Humble Oil & Refining Co. at the recent American Petroleum Institute meeting to the effect that his experience showed that removal of the chlorides from the oil greatly reduced, if it did not altogether stop, corrosion from hydrogen sulfide. If this proves out at the White Star plant it will cut out the necessity of using ammonia to eliminate hydrogen sulfide.

FROM the settling chamber the crude goes into No. 2 heat exchanger, where it runs countercurrent to the hotter bottoms just as they come from the still, thereby increasing the temperature of the crude to about 390 degrees Fahr. From No. 2 heat exchanger the crude goes into the bottom of No. 1 tower, which is equipped with five bubble cap trays. In this tower about 10 per cent of the crude is taken off as gasoline of 66.7 A.P.I. gravity; 100 i.b.p. and about 340 end. The reflux from this tower is the charging stock of No. 1 still.

From No. 1 still the vapors go into a bubble tower. The stream coming off the top of this tower is gasoline



Special Dubbs unit erected at the White Star plant, showing extra large dephlegmator to increase capacity

of 65.3 A.P.I. gravity, 106 i.b.p. and 360 end. The reflux from the tower goes back into No. 1 still and the bottoms from No. 1 still are continuously transferred by steam lift to No. 2 still.

The overhead stream from No. 2 still's tower is gasoline of 60.7 A.P.I. gravity, 110 i.b.p. and about 380 end. The reflux from this tower goes back into No. 2 still. The bottoms are steam lifted into No. 3 still.

The overhead stream from the top of the tower on No. 3 still is a naphtha of 49.7 A.P.I. gravity, 273 i.b.p. and 398 end. Reflux from this tower goes back into No. 3 still and the bottoms are steam lifted into No. 4 still. The stream from the top of No. 4 still's tower is a naphtha of 46 A.P.I. gravity, 314 i.b.p. and 410 end. The two naphthas are blended to make oleum spirits, a very high grade naphtha for use in the manufacture of fine paints and varnishes.

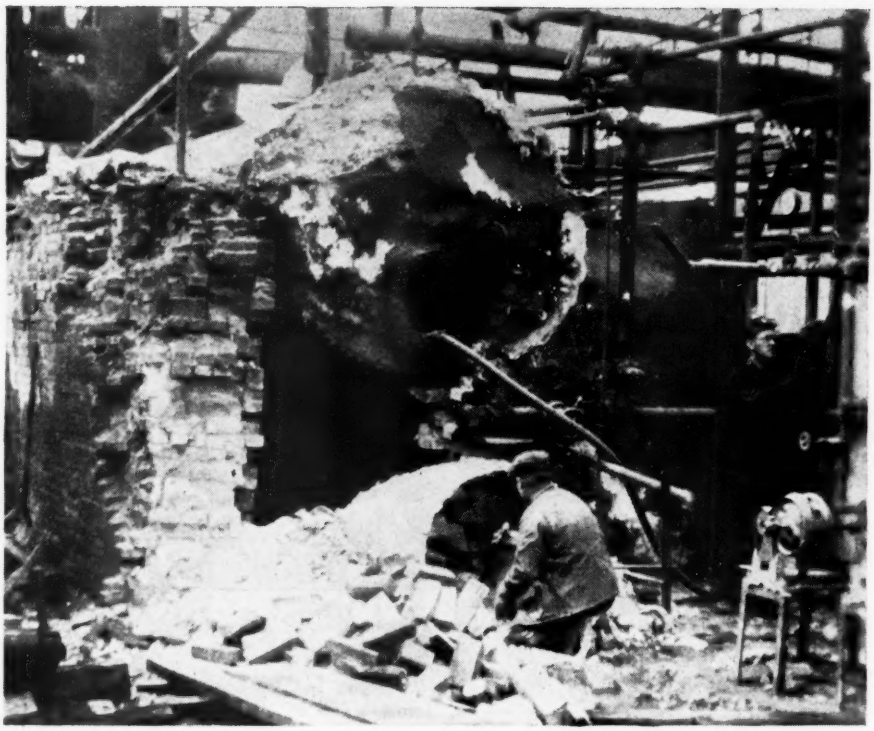
THE bottoms from No. 4 still are lifted into No. 5 and the overhead from the tower on No. 5 goes to storage, to be used as a reflux material for "trimming" the last two towers, that is regulating the temperature. Flow of the cooling material into the towers is regulated by Tagliabue automatic regulators. Cold crude is used as the medium for rectifying in the first three towers.

The bottoms from No. 5 still, after giving up their heat to the incoming crude in the two heat exchangers as before described, pass to storage and furnish the charging stock for the Dubbs units. This charging stock, which constitutes about 54 per cent of the crude, is of about 24-27 gravity A.P.I.

The stock is cracked to yield about 38½ per cent finished gasoline having initial of 100 and end point of 415. About 80 per cent of the fuel oil made in the Dubbs stills is salable after settling and almost all the remainder is burned in the refinery. Two Skookum burners are installed under one of the boilers and these are handling the most difficult and sticky of the Dubbs residuum.

As before stated, two of the Dubbs units were in the plant when Mr. Edwards took charge. One of these has two 10 by 15-foot reaction chambers, and the second has one 10 by 30-foot chamber. The one that was put in recently has a 10 by 40-foot chamber and at Mr. Edwards' direction it has a dephlegmator of extraordinary size to give it greater capacity. The three units are operated at 130 pounds, 200 pounds and 225 pounds respectively, these being the highest pressures at which it is deemed safe to run them.

All the Dubbs pressure distillate, of course, is rerun, the rerun equipment consisting of three oil-fired, shell stills in high settings. Each is equipped with a Badger bubble tower. The cracked gasoline is treated in the vapor phase in Gray polymerizers and the reflux from the towers is marketed as a stove distillate.



One of the old crude stills being torn out to make way for the new battery described in this article

One feature of the plant in which Mr. Edwards takes pride is the gas recovery system. When he asked the directors for an appropriation of $42,000 to build the system he promised it would pay for itself in six months. It paid for itself in about three months. He put in a regular Southwestern Engineering Corp. oil absorption plant and a Chicago Pneumatic gas compressor with 500 cubic foot capacity at 75 pounds discharge pressure. The compressor is driven by a gas engine, running on Dubbs fixed gas.

TWO 16,000-barrel crude tanks, one 37,500-barrel charging stock tank and all storage working, rundown and loading tanks are connected with the gas collecting system. Westcott & Greis vacuum and pressure relief valves are installed on each tank and the gas lines from the individual tanks lead into a 4-inch header on which is installed a Beco pressure and vacuum regulator.

The pressure and vacuum relief valves are set for 0.2-ounce pressure and a very slight vacuum is pulled on the system. The Dubbs gases are discharged from the system to a gas tank, where the pressure is reduced to 75 pounds and are then led through a water cooled pipe coil where the gas is cooled to around 100 degrees. Dubbs gas and gas from the other part of the plant go together through the absorber.

The gasoline is recovered from the absorption oil by steam distillation and amounts to about 4,000 gallons a day of gasoline conforming to Grade A specifications. This goes at once to a blending tank where it is blended with naphtha or straight run gasoline. The value of this recovered gasoline in November, as figured by Mr. Edwards, was around $7300.

The fixed gas is then passed through a caustic wash tank and turned into the metered line through which it is delivered to the Laclede Gas Co.

Getting rid of the fixed gas at a profit was one of the early problems of Mr. Edwards when he took charge of the White Star plant. He sought an industrial consumer and found one in the Illinois Glass Co., a big bottle manufacturer at Alton, a few miles away. The glass company gladly laid a pipe line to the refinery to get the gas.

Later the Laclede company made an arrangement with the glass works by which the gas company takes the gas.

WHEN Mr. Edwards took charge of the plant it was running 2000 barrels a day of crude oil and employed 121 men. Now it is running 5000 barrels, as before mentioned, and the payroll, including executives, office help and all, carries the names of 78 persons.

The products made by the White Star refinery are marketed through the company's own stations. It operates a very large marketing business in Detroit and vicinity.

Coal Now Has Attention of "Regulators"; Oil in the Waiting Room

By A. E. Heiss

N. P. N. WASHINGTON REPRESENTATIVE

WASHINGTON, Dec. 19

COAL operators, it is believed by competent observers in Washington, contributed mightily, within the week, to the data that can and will be used in an effort to bring about legislation at this session of congress. As the principal legislative proposal now stands it links together oil and coal.

The contributing operators are those who refused to attend a conference called by Secretary Davis, of the Department of Labor for a discussion of ways and means to bring to an end the strike in the central competitive coal fields, Pennsylvania, Ohio, Indiana and Illinois that has been going on since last April. They ignored Davis' general call for a conference. Operators representing a pitiful percentage of the total production, about two per cent, accepted the invitation. Thereby they offended Secretary Davis, 100,000 striking miners and the 500,000 other people in the mining communities whose interests are adversely affected by the strike.

As for the oil industry, it is sitting in the ante room last week while coal is getting the "regulators'" attention now. One oil bill was introduced by Senator Smoot of Utah to provide for contests of oil and gas permits and one by Senator Wheeler of Montana providing for extensions of such permits. These bills will not amount to anything unless and until the movers ask the committee to which they have been referred to move them up.

In line with many measures on various affairs re-introduced as a matter of record when the committees get to work after the holidays is that of Senator McKellar, of Tennessee to prevent foreign governments owning oil production or lands in the United States unless those governments permit Americans to own oil and lands within their territory. There was no change in the time in which the old bill authorized the shipping board to report "on or before July 1, 1924" the names of such governments, showing the senator's interest in the bill. If the senator takes the bill seriously the time element can be changed in committee.

Senator Copeland of New York has introduced his coal regulation bill. It differs somewhat from the Parker measure but in the main is the same thing which authorizes collection of data and appoints conciliators and mediators, the same duties and functions performed now.

Secretary Davis knows the coal strike is a vain and useless gesture. He said there were too many mines and too many miners, 200,000 too many of the latter. He knows the conference, therefore, is practically useless because the country is getting along without the coal the strikers might produce. In fact thousands of non-union miners are out of work because the country is getting along with less coal.

Nevertheless Secretary Davis is offended and talks about what the government can do about the matter.

"NO MAN is greater than his government, no man should ignore its call" said Davis commenting upon the failure of more than a handful of operators to respond to his call. "No force can be used to force an operator to sign contracts or compel workers to go to work. But if the public opinion is aroused, government can compel action for the national good, however distasteful that action may be, temporarily, to the parties immediately affected."

That veiled threat was made by Secretary Davis at the end of the first day's conference, Dec. 14. The representation of operators was not greater at the second day's conference.

"It is useless for small operators to attend a conference unless the major operators and miners from a limited territory can solve the problems of the entire industry. And neither the President of the United States, the Secretary of Labor, nor any other government official has the power to compel the industry to cure its own ills, or meet with any agency set up for that purpose. . . . Either the industry may be left to sink of its own weight in the morass in which it now is . . . . or Congress, which alone has the power to act, may heed the suggestion which President Coolidge has twice offered in his messages. The president suggested a special arbitration commission, to act in emergency when the nation's supply of coal is threatened.

"Certain representatives of the present coal conference point out, however, that as emergency is the chronic state in coal, the President's suggestion might have to be carried farther. The question was raised (in the conference) whether supervision of the industry might not have to be given to a body similar to the Interstate Commerce Commission."

THESE quotations from Davis are not offered as pearls of wisdom but merely to show how sentiment is built up for a supposed legislative settlement of an economic problem. Throughout the conference the keynote was "waste" of a natural resource, exactly the same as in discussion of oil industry problems, and conservation as the figure in the lower register. Secretary Davis and everybody else admitted that there was little hope of anything being accomplished, yet the talk went on, day after day, with the recalcitrant operators who refused to come to Washington as the persons upon whom it was safe to empty vials of wrath.

Continental Trading Probe May be Kept Alive

WASHINGTON, Dec. 19

A PLAN for keeping H. M. Blackmer, Midwest Refining Co., and James O'Neil, Prairie Oil & Gas Co., out of the country even after the criminal litigation growing out of the Teapot Dome contract and lease have come to an end or to punish them if they come back is under consideration by the leaders of the coalition that controls the Senate. It is to have the Walsh committee initiate another inquiry into the organization and work of the Continental Trading Co. and summon not only those who have already testified but also the recalcitrants in France.

A resolution of that sort would remain alive to the end of the Seventieth congress two years hence, regardless of what might happen to the defendants in the Teapot Dome criminal cases. If Blackmer or O'Neil came back to the country after

AXTELL J. BYLES

President of the Tide Water-Associated Oil Co. and a vice-president of the American Petroleum Institute, elected by the directors at the Chicago meeting Dec. 5 to 8

the criminal cases were completed they could be summoned before the Senate committee, asked to testify, and if they refused, indicted for contempt.

The fact that such a course has been adopted to keep the matter alive is taken as indicating some doubt as to the efficacy of the law, passed at the instigation of Senator Walsh, providing for the collection of a fine not exceeding $100,000 from Blackmer for his refusal to come home to testify in the Fall and Sinclair indictment trials. It is felt that if the Senate leaders, who, for four years have been trying to punish someone for the naval reserve leases and contracts felt certain that the $100,000 fine could be made to stick to Blackmer the move to keep the case alive by means of another Senate committee investigation would not be under consideration.

Senator Walsh has introduced a bill specifically exempting from punishment Fall's son-in-law so that he may be compelled to testify as to the disposition of the Liberty bonds that have figured in the testimony concerning the operations of the Continental Trading Co. Whether that bill can be passed in time to make Son-in-law Eberhart say he will or will not disclose what became of the bonds in time to cause him to be summoned in the next trial of the indictments of Fall and Sinclair, is a question.

The government is using up much time in the criminal contempt proceedings growing out of the Sinclair surveillance of the jury. There seems to be no hurry at all to get to the end of that trial. That has led to the suggestion that perhaps the government is gladly marking time so as to put off the next trial under the indictments until the managers of the prosecution, in Congress, can make an effort to get new laws to be used in their effort to punish Fall, Sinclair and Doheny.

The longer the criminal contempt proceedings are carried on the more time Senator Walsh will have to procure legislation that will enable the government to force Fall's son-in-law to testify as to the bonds resulting from the Continental Trading Company's operations.

There are statutes which require persons to testify, even if the testimony incriminates them, upon the precise condition that such testimony shall not be used against them. Whether Fall's son-in-law would testify is not known. If he did not he could be punished for contempt of court. In theory he could be kept in jail for unnumbered years for failure to purge himself of contempt.

As matters stand now the government has failed to show that any of the Liberty bonds resulting from the Continental Trading Co.'s operations ever got beyond the son-in-law's hands. That being so the criminal contempt proceedings and the proposal to force the son-in-law to testify may be regarded as efforts to punish by indirect methods, offenses that have not been proved because Blackmer and O'Neil have left the country and the son-in-law has refused to testify about the final resting place of the bonds.

Seminole Accumulation Is Geologist's Theme

TULSA, Dec. 17.—While the surface structures as found in the Seminole area were good enough to put the cost of acreage above that of the usual wild-cat stuff, the size of the subsurface structures of the district was not realized until the Indian Territory Illuminating Oil Co. well in the NW SE of 24-9-6 encountered the Hunton lime at 4012 feet, which, due to the surface dip, was much higher than normally would be anticipated. The Barnsdall Oil Co. well in 10-9-5, by finding the Hunton lime some 300 feet higher than the surface dip indicated, removed any doubt as to the magnitude of the uplift which was causing the accumulation of oil.

This is brought out by D. R. Snow, chief geologist of the Barnsdall Oil Co., in the December issue of "Barnsdall", company publication.

Mr. Snow goes on to say that, "In favorable oil territory major uplifts rarely fail to produce. * * * this has been illustrated, first at Mexia, next at Smackover, then at Amarillo, which production is governed by a buried mountain ridge; in southwest Texas, where the Pecos-Crane-Upton, and Winkler county production is found over another buried ridge, and at Seminole which is really an offshoot of the fold in of the Arbuckle Mountains."

There have been, however, many things in the Seminole area that are unexplainable, such as the offsetting of large producing wells with dry holes, and dips from well to well previously unheard of in Oklahoma geology. Nevertheless, the chief cross that subsurface geology has to bear is inaccuracy in well measurement, and it may be that many startling discrepancies are traceable to this source, says Mr. Snow.

7 Companies Participate in Joint Test by Pooling Acreage

Staff Special
TULSA, Dec. 17

STEP by step, the oil industry is moving to a fuller degree of cooperative effort in development and operation of producing fields. The advance made in the Mid-Continent field the past year has been marked and numerous projects involving a decrease of capital expenditure await only the return of normal conditions to be put into effect.

The latest joint venture is a wildcat acreage pooling plan involving seven companies. It is noteworthy for two reasons: the large number of companies involved and the method of locating the first well.

The operators are starting the test on the block in the center of a 40-acre tract. It is a Wilcox sand test and will probably be 5,000 feet deep. Considerable discussion has been conducted among operators in the Mid-Continent throughout the year on the revision of well spacing, the general practice now being a well to each 10 acres. The seven companies who are parties to the acreage pool are thus making a radical revision. If the first test is a producer, the location in the center of the adjoining 40 acres will be called the offset.

The seven companies in the joint venture are the Twin State Oil Co. and Gardner Petroleum Co., who were partners in part of the acreage; Gypsy Oil Co., L. H. Wentz, Phillips Petroleum Co., Mid-Continent Petroleum Corp. and Marland Oil Co. A total of 1,000 acres is in the pooled block.

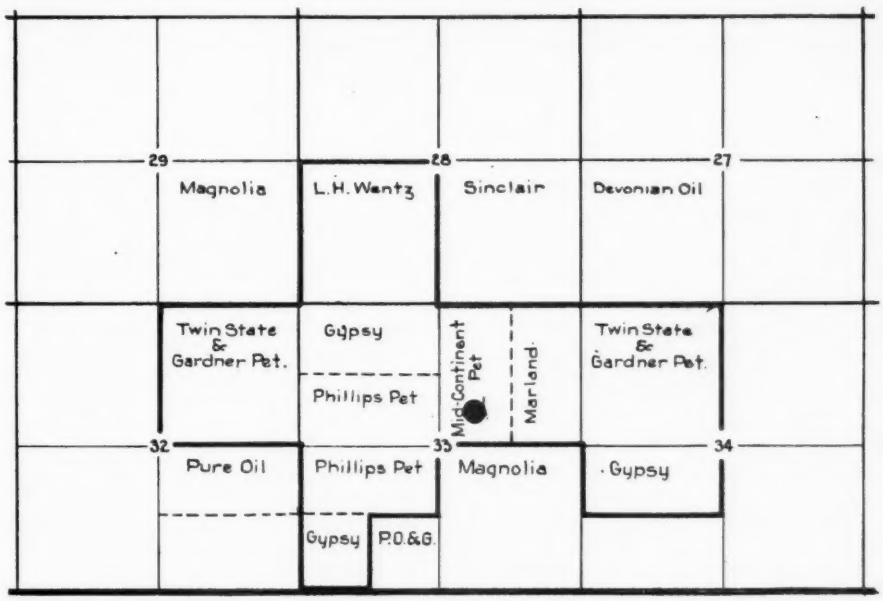
Gardner Petroleum Co. is drilling the test well which is on a lease contributed to the enterprise by the Mid-Continent Petroleum Corp. The seven companies put in 25 forty-acre tracts, hence the figure 25 was used as the denominator of the fraction. The interests thus divided as follows:

	Acres	Interest
Twin State & Gardner	320	8/25
Gypsy Oil Co.	200	5/25
Phillips Petroleum	160	4/25
L. H. Wentz	160	4/25
Mid-Continent Pet.	80	2/25
Marland Oil	80	2/25
	1,000	25/25

Each company gave the other assignments for the fractional interest the assignee held in the whole. Thus, Twin State and Gardner executed assignments in its 320 acres to the Gypsy for 5/25, to the Phillips for 4/25, to Wentz for 4/25, to the Mid-Continent Petroleum Corp. for 2/25 and to Marland for 2/25, thus assigning in its acreage a total of 17/25 and retaining its 8/25 part of the acreage it held. Twin State and Gardner, in turn received 8/25 of the acreage held by each other company.

The block is in Payne county, Okla., in T. 19N, R. 1E, west of Stillwater. The first well is being drilled in the center of the southwest of the northeast of Sec. 33.

Under the plan each company retains its proportionate share of the oil that may be produced. Each pays its share of the cost of the first well in proportion to the interest it holds in the block. Each company names a representative to serve on the supervisory committee, Gardner Petroleum conducting the drilling operations and billing each company for its share of the expense.



Acreage block in T. 19N, R. 1E, Payne county, Okla. Heavy line encloses tracts that were pooled. Black circle is location of first test

S. A. Wassum Elected Head Of Nebraska Oil Men

OMAHA, Neb., Dec. 16.—S. A. Wassum, head of the Tekamah Oil Co., Tekamah, Neb., was elected president of the Nebraska Independent Oil Men's Association at the seventh annual convention in the Fontenelle hotel here, Dec. 14 and 15. He succeeded Morris Milder of Omaha. The convention was spoken of by oil men as a record breaker for attendance and popular interest. The total registration was 250 and about half were Nebraska jobbers.

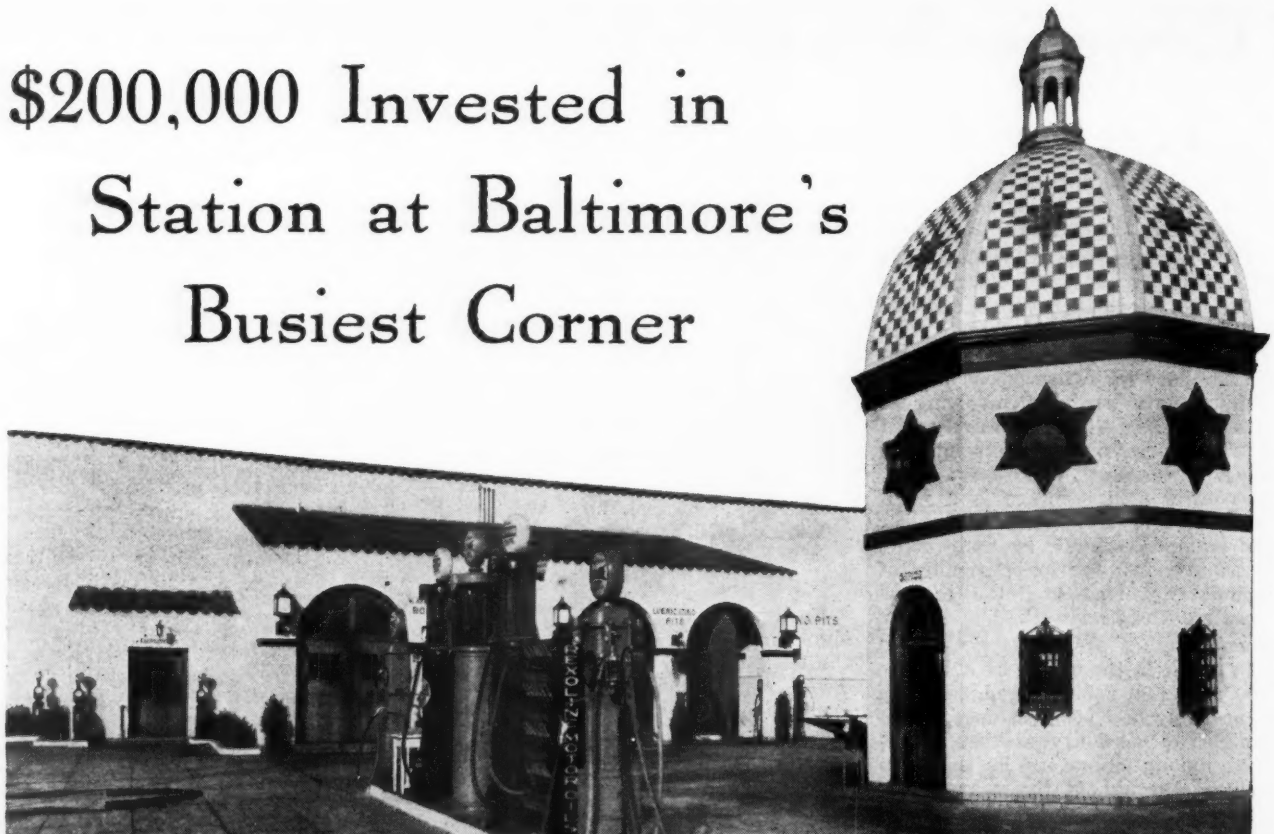
C. C. Rosenberg, head of the Lexington Oil Co., Lexington, Neb., was elected first vice president and R. H. Steinmyer, of Beatrice Filling Station, Beatrice, Neb., second vice president. Three new directors are Ray Ogier, Hendy-Ogier Auto. Co., North Platte, Kile R. Martin, Pilger Oil Co., Pilger, and S. T. Hudson, Hudson Oil Co., Chadron. Mr. Hudson was chosen to succeed Mr. Wassum who was a director for another year at the time he was elected president. The other two directors fill places vacated by normal expiration of three-year terms.

F. R. Linderman, Linderman Oil Co., Central City; E. C. Uhlig, Sutherland Oil Co., Sutherland; and G. A. Steele, Manhattan Oil Co., Omaha, are the directors with one or two years to serve. Charles M. Sutherland, Lincoln, Neb., continues as secretary and treasurer.

Wednesday forenoon, the first session of the convention, was given over to organization affairs, and reports from officers and committees. In the afternoon Morris Milder talked about present day marketing problems. James A. Gilmore, secretary of the American Oil Men's Association, discussed "Salesmanship," and Paul Hadlick, secretary of the Minnesota jobbers, related the success his organization has experienced with a mutual coupon interchange. M. L. Long, secretary of the Iowa jobbers, scheduled to discuss "Interstate Relations," was unable to attend but wired his regrets.

Thursday afternoon Robert Bruce White of Chicago, division manager of the Valvolene Oil Co., discussed "Modern Automotive Lubrication". C. C. Wagner, chemist for the Dacotah Oil Co., of Madison, S. D., talked about "Deterioration of Crank Case Oil", and Arthur Anson of Tulsa, president of Altitude Petroleum Co., talked on "Economic Basis of Refiner-Jobber Relation". An entertainment was provided that after noon from 4 to 6 p.m. by the Nebraska & Iowa Steel Tank Co., at their plant.

$200,000 Invested in Station at Baltimore's Busiest Corner



Manager's office at the new Sherwood Brothers station at Charles street and North avenue, Baltimore. To the rear, in center, is building for enclosed lubricating pits and customer's waiting room. To the rear, on the left, is the employee's wash room

BALTIMORE, Dec. 17 APPROXIMATELY $200,000 has been invested by Sherwood Brothers, Inc. in replacing a service station at Charles street and North avenue here, at the busiest intersection in the city. This covers cost of the buildings, ground, equipment and improvements.

The new plant is of Spanish architecture designed by a Baltimore architect. There are two buildings, one an octagonal kiosk structure, for the manager's office; the other has two lubricating pits, a customer's waiting room, and an employe's wash room. Equipment includes 18 gasoline outlets, one pump island under a canopy and two in the open; four lubricating pits, two covered and two in the clear; and numerous air and water standards and an alcohol pump.

The old station was replaced as it was inadequate for the volume of business and was obsolete, the company officials considered. The new plant was opened Nov. 18 and 19. In advertising the opening 5,500 lines of newspaper space and signs at the station were used. Souvenirs given away opening day were automatic pencils and razor sets.

To build a station pleasing to the public and in keeping with the importance of the marketing business, as well as one that was efficient in operation, was the company's motive. Practically no expense was spared in the building or in the appointments, writes John R. Sherwood, vice-president, "and we are justly proud of the accomplishment not only from the operating point of view, but also from the point of view of good architecture." Spanish architecture is being used in other stations erected by Sherwood Brothers.

In educating the public to use the new station Sherwood Brothers have issued to motorists a folder, with a ground plan of the plant and dotted lines indicating the best traffic lanes. The folder describes the use of the various departments, how the products which are all manufactured by Sherwood Brothers are handled at the station, and the facilities of the customer's waiting room.

The station is on the northeast corner of the intersection. According to the company the old station was one of the largest in Maryland from the volume of sales standpoint, although it is not open Sundays. Following is a detailed description of the station and the management given by Mr. Sherwood.

THE driveways are spacious and the pumps so located as to fill 18 motor vehicles simultaneously. The station may be entered on both North avenue and Charles street and it is possible for any motor vehicle to enter and leave the station through the same entrance without backing. The narrowest single driveway is 15 feet wide and the narrowest double driveway 28 feet. The drives which have been marked off in 30" squares are white, save for an 18" black border and several black and white designs. The driveways have been graded to a series of drains, so located as to take care of water drained from the radiators in cold weather when anti-freeze solutions are being sold, as well as to give relief in inclement weather.

THERE are two building units of Spanish design. The buildings and walls are of block construction and are covered with a delicate shade of buff-colored, oriental stucco. The building unit in the center is an octagonal kiosk structure used as the station manager's office. On the rear of this structure is a canopy which covers the two rear driveways, and on the north side of the premises is a larger building in which there is a general waiting room, ladies' dressing room, rest rooms for men and women, storage room and two pits. On the west end of this building is a wing which has been especially equipped for the employes' comfort.

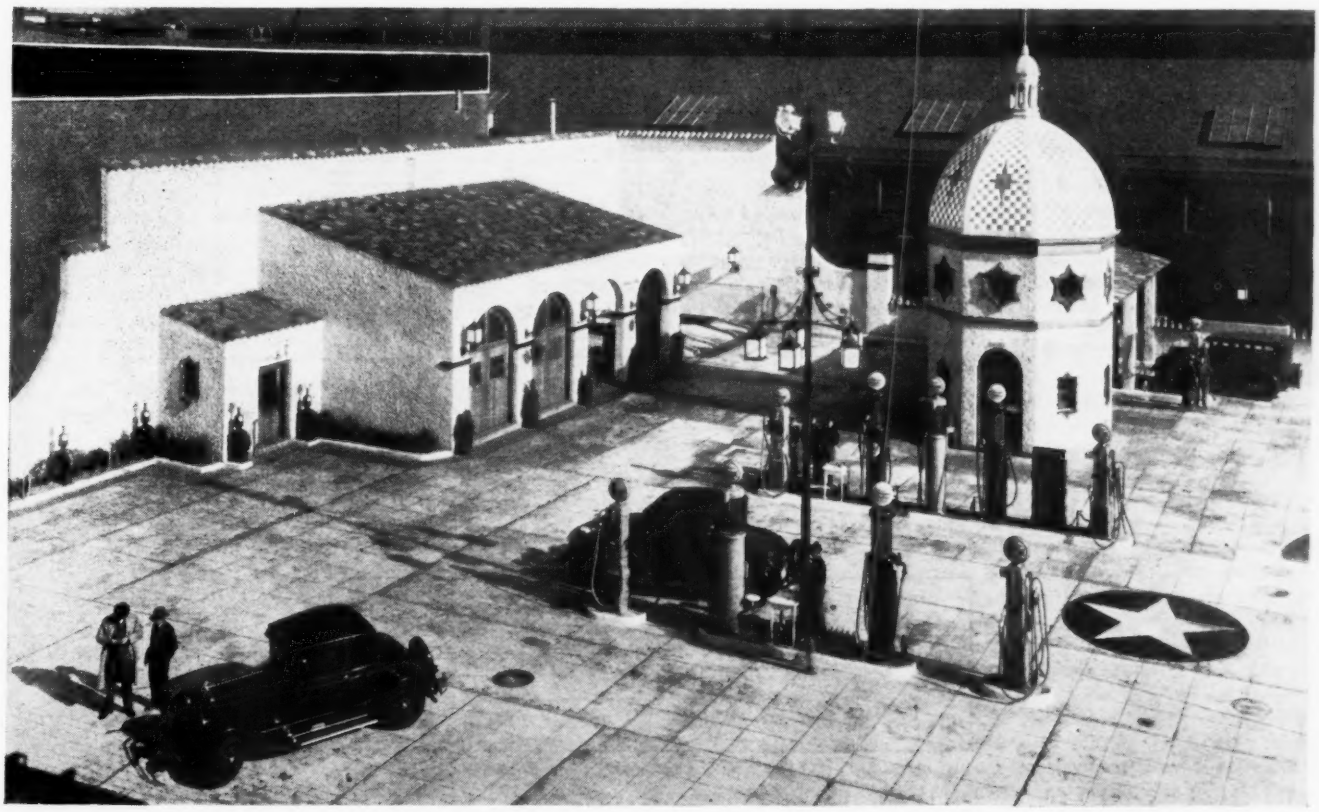
The roofs of this building and the canopy, and the top of the walls dividing property lines are covered with

ancient mission tile of various shades. Roof and ceiling timbers are exposed throughout. The wood is cypress and has been treated with linseed oil to produce an ancient effect. All timbers are large and plain. The doors leading into the general waiting room, employes' locker room and the two entrances to the kiosk structure are massive and have been ornamented with heavy, rough handmade nails, the heads approximately seven-eighths inch in diameter. The transoms over the waiting room entrances are grilled, as are the doors leading into the employees' room and manager's office. The entrances into the kiosk structure are on the front and rear, and on the corresponding sides are small windows covered with fancy grilles. This building is actually two stories in height and directly above each of the lower openings is a star-shaped window. These elaborate windows are beautiful and protrude about four inches on both the inside and outside of the 13-inch walls. Directly below the star windows is a wood belt course which conforms with the cornice of the building. The windows, belt course and cornice are cypress and have also been treated with oil to produce aged effects.

The dome is covered with glazed tile blocks and is laid off in panels. Each panel is made of blue and white blocks outlined with bright yellow and in the center of each is a red pointed design. The dome is finished off with a copper cupola which has been tinted pale green. In the bottom of the cupola is a bright, white light and through the top extends an ornamental weather vane of pirate-ship design. The interior walls in both buildings lighted with yellow ochre. The floors in the kiosk building and in the waiting and dressing rooms are made of broken, smooth colonial brick laid as roughly as possible, after which it was ground with emery and shellacked to produce an ancient effect. The rest room floors are of white and blue tile. The rest room walls, which are smooth finish, are painted ivory. Along the north wall and beside the waiting room building are flower beds. On the wall columns and the low walls are flower boxes of various designs and sizes, in which are planted evergreens. Old English tripods have been suspended on ornamental brackets on two of the columns which represent the supporting structure of the waiting room building. Directly in front of each of these five columns is a green tub containing a three-foot Retinispora. All column caps are flaming red and lettering announcing waiting room, office, lubricating pits, etc., are raised wooden letters covered with gold leaf.

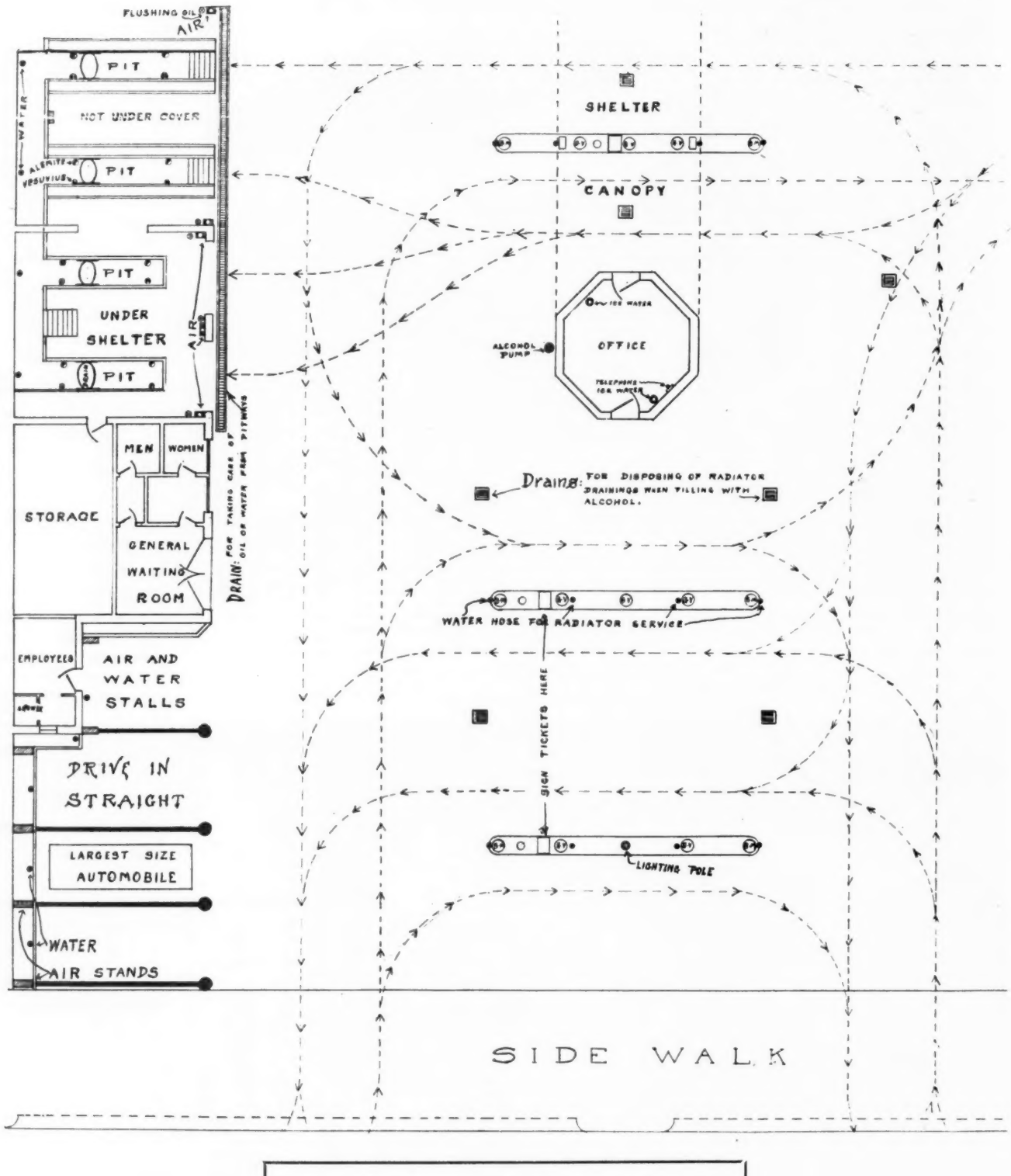
Close-up view of lubricating pits and customer's waiting rooms showing above ground pit equipment and details of building walls, roof and door construction

The driveways and buildings are illuminated by floodlights installed on a 35-foot pole on the front island. On the same pole are also five lanterns of Spanish design supported by ornamental iron brackets. Fourteen more lanterns of similar design are affixed to the walls on various parts of the property. The air stations and pumps are illuminated and there are two



Aerial view of the station from the Charles street entrance

Ground Plan of $200,000 Service Station



Ground plan as published in folder informing customers how to use the station. Broken lines indicate traffic lanes for reaching all departments.

lights under the canopy. The kiosk structure has no second floor and is lighted by eight Spanish lanterns suspended on chains from the high, massive ceiling. The waiting and restrooms are illuminated by candelabras affixed to the walls. The sheltered pit area is illuminated by eight wall brackets with ball globes.

The furniture in the manager's office is American walnut of modern design. Waiting room furniture is of Spanish design and is very rugged. It is pleasing to the eye and lends much comfort to persons who are waiting while their cars are being serviced. In the ladies' dressing room the furniture is painted in gay Spanish colors, toned down considerably by the use of black.

In the employes' quarters are individual metal lockers, chairs, table, toilet, wash basin and shower bath.

THE storage room is two stories high and the second floor is reached from the inside. On the second floor are lockers for storing accessories and other items of small size but great value. Here are also kept canned goods, empty containers, waste and other appurtenances. On the first floor are two large Wayne air compressors, one in continuous operation and one used as an auxiliary; pneumatic Alemite compressor; Vesuvius outfits; handpumps for drawing oils from underground storage tanks, several hundred bottle dispensers for lubricating oils, truck for conveying them about the premises, sink equipped with running water for washing the bottles before they are refilled. and other items such as barrels of soaps and greases; and oils that are not greatly in demand.

There are four communicating pits; two under shelter and two in the open. Each pit is equipped with two Alemite and two Vesuvius outlets, all operated by air pressure. In each pit is a tool locker, stationary light, extension light and drain.

One of the features of crankcase pit equipment is a large oval funnel which extends across the entire width of the pit and which may be properly located under any make of car by sliding it forward or backward. Through the funnel the crankcase drainings flow directly from the car to an underground tank which is emptied by air pressure. At no time are crankcase drainings handled by manpower. Under the shelter are surface pits and out in the open are the elevated kind. The open pits may be entered through the corridor which connects the pit system, or by steps which have been provided at the rear of each pit. The sheltered pits, however, can be entered only from the corridor; but a special stairway has been constructed between the sheltered pits by which one may enter the corridor.

The flushing oil is stored in an underground tank and the system operated by air pressure. The six outlets are so located in the pit area as to enable the mechanics to secure a supply of flushing oil on either side of any pit.

There are six Eco air stands conveniently located to the pits. This enables the mechanics to give air service to cars on the pits without pulling the hose around the wheels. This same feature prevails at the air stalls on the north side of the premises near the Charles street entrance. At the head of the air stalls are flower beds in which are six more Eco air stations. These stalls are sufficiently spacious to accommodate the largest makes of cars or trucks. At the head of each air stall and pit, and at four locations on each of the three pump islands, are water outlets for filling radiators. Radiator water is served through a hose and is controlled by a squeeze nozzle attached to the end. This eliminates the service man or customer having to use the old-time bucket. The water stations at the head of the air stalls are attached to brass fixtures which are highly polished.

Due to the actual size of the premises and the volume of business transacted, the station is operated departmentally. There are three pump islands; each has an independent set of tanks and a manager. The pits are controlled by the service manager and a fifth corps attends to giving air, radiator and battery water, and care for the general appearance of the premises. The head of this, the utility crew, has complete charge of lubricating oils. He is charged with all lubricating oils received by the station and in turn charges the various departments for the number of bottles delivered them during the day. Anti-freeze solutions are also handled by the utility corps, and are served by them rather than by pump operators.

Lubricating oil is served to the car in bottles only. This system prevails throughout, including the pit department. The bottles are washed before they are refilled and are spotlessly clean when delivered to the departments for display. All spouts are nickel-plated and are kept polished. Special oil racks have been designed and built by the constructors of the station. By use of these racks each department may display 60 full bottles of oil at all times; and there is no grade of oil sold at the station which cannot be served the customer immediately upon request.

TWO of the three motor fuel departments consist of three 10-gallon electrically operated Tokheim visible pumps and two 2-hose electrically operated St. Louis meter pumps. On each island there is a white enamel stool and table which contains a drawer in which to keep charge tickets and other necessary stationary. The third department, which is the front and most popular of the three, has similar equipment except that it has but two ten-gallon Tokheim visible pumps.

Henry Powell Hopkins, Baltimore, was the architect. The mechanical installations and driveways were designed by Sherwood Brothers who also acted as contractors and builders on the entire work.

A Venture in Retailing

ACTING on the theory that selling gasoline and motor oil to the public is a retail business commensurate with department stores, jewelry stores, furniture stores and other retail lines which are housed in spacious buildings, Sherwood Brothers, Inc. has invested $200,000 in a service station at an intersection in Baltimore which the police department survey showed to be the busiest in the city as regards motor traffic.

This theory has been substantiated by the recent retail survey made by the U. S. Department of Domestic Commerce in larger cities of the country. The survey showed that service stations are important units in retail distribution in these cities, while to many persons the corner "gas station" seems relatively insignificant in the volume of business done. Data on Baltimore published in NATIONAL PETROLEUM NEWS, Nov. 9, showed that the average retail outlet in Baltimore last year sold $36,165 worth of goods while the average service station sold $59,640 worth. Out of 44 retail lines, service stations ranked ninth in volume of sales per unit.

NATIONAL PETROLEUM NEWS is indebted to John R. Sherwood, vice-president of Sherwood Brothers, for the detailed description of this station published herewith.

Deepens North Park Well

TULSA, Dec. 17.—The Continental Oil Co. has drilled through the sandy shale formation which showed some oil in its No. 1 Hoye, SE NE of 34-9N-78W, Jackson county, Colo. This is in the North Park district of the state, near Wyoming line. The test is south of the freak well drilled by the Continental in the same area which a year ago developed production of high gravity oil and a large quantity of non-flammable gas in the Muddy sand. The Hoye well found the oil in the Frontier formation, which is above the Muddy sand. It also had about 200,000 cubic feet of gas daily which was flammable. The oil was found at 4140 feet.

Experiments in Cutting Breathing Losses From Vapor-Tight Lease Tanks

By Ludwig Schmidt
Associate Petroleum Engineer, Bureau of Mines

(Prepared in Cooperation with the State of Oklahoma)

THE use of vapor-tight tanks has proved so effective in reducing the evaporation losses of petroleum that, today, practically all operators are using this type of equipment. It has been shown, however, that vapor-tight tanks should be supplemented with additional measures which will further reduce evaporation. Probably the most effective use of the supplemental measures are found on the small producing leases where the breathing losses from vapor-tight stock tanks materially affect the volume and gravity of the stored oil. The breathing loss from a vapor-tight stock tank that is filled and emptied daily is a negligible quantity. Also, the filling loss, which on the average varies between 0.1 and 0.2 per cent, usually is not of a sufficient quantity to affect materially the value of the crude.

However, the combined breathing and filling losses from a vapor-tight tank requiring several days to fill are of sufficient importance to warrant the use of measures in addition to the vapor-tight tanks. .The breathing losses are caused by atmospheric variations. Probably the greatest are the changes in atmospheric temperature which cause changes in temperature of the vapors in the tank. During the day, as the temperature increases, the gasoline-saturated vapors in the tank expand and are forced out into the atmosphere. At night the vapors are cooled and contract, drawing into the tank fresh air, which becomes saturated with gasoline vapor and is forced out of the tank during the following day. In addition there are many smaller variations throughout a 24-hour period caused by showers, clouds, winds, and other atmospheric conditions which likewise cause the tank to breathe.

The two most common measures used by lease operators for reducing breathing losses in vapor-tight tanks are, first, operating lease tanks under pressure, and second, use of light colored paints and tank houses. In this report these two methods are discussed, together with their adaptability to lease operation. Results of experimental observations are given which show the reduction of evaporation losses where these supplemental measures have been used.

Caution on Tank Housings

CAUTION in the use of housings over vapor tight lease tanks as a means of reducing breathing losses is sounded in the accompanying report of experiments carried on by Bureau of Mines engineers at the Bartlesville, Okla., station, in cooperation with the state of Oklahoma.

Installations of this character must be made with care, the report points out. Housings act as a flue and accelerate the flow of air around and over the tank. If the tank is not vapor tight, use of a housing will probably increase the breathing loss.

"It is probable that the most effective method of reducing breathing losses will consist of a combination of light colored paints and holding of suitable pressures on the tanks," reads the report. "The amount of pressure required depends upon the lease operation and physical characteristics of the oil handled."

The operation of lease tanks under pressure prevents gasoline-laden vapor from leaving the tank until certain definite and predetermined pressures are built up within the tank. This restricts the movement of vapors due to temperature variations and reduces the movements due to other atmospheric changes such as windage and barometric pressure.

THE holding of pressure on lease tanks is not limited from considerations of construction, for there are now on the market bolted tanks operating under working pressures up to 18 or 20 ounces, and many producers are using riveted or welded tanks, operating under pressures as high as five pounds. Local conditions of lease operation, however, may limit the amount of pressure held on stock and flow tanks.

It must be kept in mind that, to eliminate all breathing by the use of pressure relief valves, the valves must be set to operate at a slightly higher pressure than the maximum developed within the tank. This internal pressure is the vapor pressure of the oil plus the pressure due to the expansion of the air-vapor mixture caused by atmospheric changes.

In order to determine the actual value of holding pressure on lease stock tanks, a comparative test was made between two 65-barrel tanks; one was equipped with a pressure and vacuum release valve operating at about one and one-half ounces pressure or vacuum; the other was equipped with a valve operating at 16 ounces pressure and 2 ounces vacuum. The valves were of the dead weight type.

In order to duplicate filling conditions on a small lease the test tanks were partly filled at regular intervals with oil having an average gravity of 37.5° A.P.I. Gages, temperatures of the oil, and samples were taken at the beginning and end of each filling period. From these data the evaporation loss for each interval was obtained, also the total evaporation loss for the entire filling period. The oil passed through a combination flow tank and gas separator before entering the stock tanks.

OBSERVATIONS were made over a period of 36 days during January and February. The average atmospheric temperature was 46°F. The total volumetric loss for the tank equipped with the 2-ounce pressure relief valve was 1.40 per cent, with a gravity loss of 0.55° A.P.I. The total volumetric loss for the tank equipped with the 16-ounce pressure relief valve was 0.59 per cent, with a gravity loss of 0.3° A.P.I.

The evaporation losses sustained in this test are much below average, due to the low atmospheric temperatures and other winter conditions. During the summer months the losses would

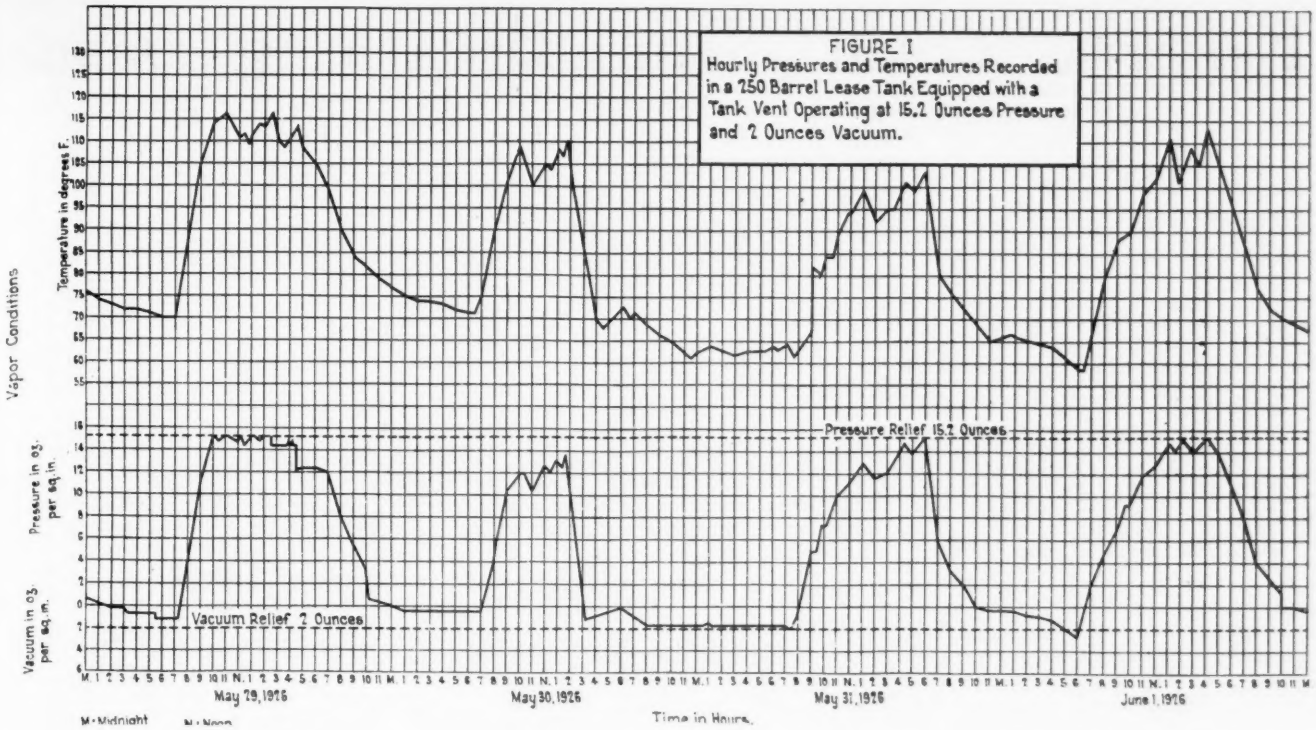


FIGURE 1
Hourly Pressures and Temperatures Recorded in a 250 Barrel Lease Tank Equipped with a Tank Vent Operating at 15.2 Ounces Pressure and 2 Ounces Vacuum.

be at least twice those indicated by the test.

The results of this test and other tests on lease storage show that a tank equipped with a pressure relief valve, operating at 14 to 16 ounces pressure will reduce the evaporation losses about 60 per cent, as compared with a tank equipped with a relief valve holding about two ounces pressure, with other conditions equal.

THE effect of pressure relief valves in reducing the amount of time the tank is breathing out is given in Figure 1, which shows the hourly temperatures and pressures of the vapor in a 250-barrel lease tank for a four-day period during the latter part of May 1926. This test probably represents average temperature conditions in the Mid-Continent area. The tank was equipped with a relief valve operating at 15.2 ounces pressure and 2 ounces vacuum. Figure 1 shows that on May 29, the tank vented to the atmosphere about 110 minutes. No venting took place on May 30 although the temperature in the vapor space reached 110° F. During the early morning hours of May 31 the temperature of the vapor space was 10° F. lower than the minimum reached the preceding day. This caused a considerable contracting of the vapor, with the resultant flow of fresh air into the tank. For this reason the tank vented for a short period on May 31, although the maximum temperature was only 103° F., or 7°F. less than the preceding day. The minimum temperature was 5° F. lower than any preceding day recorded on the curve, and the maximum temperature was about 113° F. This resulted in the tank venting for about 30 minutes. This curve shows clearly the effect of temperature variation upon the breathing of the tank. It also indicates that, if the tank had been equipped with a free vent, every small variation in temperature would have caused a movement of vapors, either contraction or expansion, in the tank.

Although the value of light colored paints has been discussed in a previous report[2] it might be well to state two of the principal reasons for the use of light colored paint. First, light colored paint reduces the breathing of the tank by reducing the variations of the temperature of the vapor space. Second, it reduces the temperature of the vapor and the surface temperature of the oil. By lowering the surface temperature of the oil, the vapor pressure is reduced; this greatly reduces the breathing of the tank and the amount of gasoline vapor in the air-vapor mixture above the oil.

Tank houses reduce the evaporation losses in the same manner as light colored paints, that is, by reducing the breathing due to temperature variation and by reducing the vapor pressure of the crude. However, care must be exercised in the use of tank houses, for this type of construction accelerates the flow of air around and over the tank, similar in action to a flue. If the tank is not

2 Schmidt, Ludwig, "Effect of Tank Colors on Evaporation Loss of Crude Oil" Serial 2677, Bureau of Mines, 1925.

Table 1—Average Sample of Oil Used in Comparative Paint and Housed Tank Test

Air Distillation

Specific Gravity, 0.843 — A.P.I. Gravity, 36.3°

Distillation, Bureau of Mines, Hempel Method

Barometer 745 mm. First drop: Per cent water, trace 30°C. (86°F.)

Air Distillation Temperature °C	Per cent cut	Sum per cent	Sp. Gr. cut	A.P.I. cut	Temperature °F.
Up to 50	1.4	1.4	0.655	84.5	Up to 122
50 - 75	1.4	2.8			122 - 167
75 - 100	3.7	6.5	0.711	67.5	167 - 212
100 - 125	6.4	12.9	0.735	61.0	212 - 257
125 - 150	5.8	18.7	0.754	56.2	257 - 302
150 - 175	5.3	24.0	0.771	52.0	302 - 347
175 - 200	5.0	29.0	0.788	48.1	347 - 392
200 - 225	5.6	34.6	0.806	44.1	392 - 437
225 - 250	5.6	40.2	0.818	41.5	437 - 482
250 - 275	6.7	46.9	0.832	38.6	482 - 527

Approximate Summary

	Per cent	Sp. Gr.	°A.P.I.
Light gasoline	6.5	0.687	74.5
Total gasoline and naphtha	29.0	0.744	58.7
Kerosene distillate	11.2	0.812	42.8
Gas oil	6.7	0.832	38.6

vapor tight the use of the tank house probably will increase evaporation losses due to the increased circulation of air over the oil surface.

In order to determine the relative value of light colored paints and tank houses, three 250-barrel lease tanks one painted with aluminum paint, one painted red, and the third protected by a wooden tank house, were equipped with recording thermometers and observations taken over an extended period. All of the tanks under observation were of the same make and equipped with a combination gage hatch and vacuum and pressure relief valve. In this valve the pressure relief is of the dead weight type, excessive pressure raising the entire cover, allowing the air vapor mixture to vent through the gage hatch. The pressure valve operates at 16 ounces. The vacuum relief is operated by a vanadium steel spring which may be regulated to open at from ½ to 4 ounces of vacuum. In this test the vacuum valve was set to operate at 2 ounces. Before opening the gage hatch for sampling the oil or gaging the pressure in the tank is released by pushing down the plunger in the center of the valve cover. This allows the excess air-vapor mixture to escape through the vacuum vent.

THE crude oil produced on this lease had an average gravity of about 36.3 A.P.I. with a gasoline and naphtha content of 29 per cent, determined by the Bureau of Mines Hempel method. A distillation record of the average crude is shown in Table 1.

The comparative observations were started in March, 1926, and extended through October. The vapor temperatures in each tank were obtained with recording thermometers checked at intervals of four weeks. At these times, a general inspection of each tank was made to see that it was in first class condition and that no oil or dirt had collected on the tank that would effect the value of the different colored paints. All observations were made during the normal operation of the lease. Observations made during May were selected for discussion as they represent average conditions throughout the test.

Table 2 shows the average daily minimum temperature for the housed tank to be 63° F. This is the highest average daily minimum of the three tanks. An explanation for the comparatively high minimum temperature for the housed tank probably depends upon the laws of heat absorption. During the day the wood absorbs heat from the sun; at night the heat is given off slowly, and some of it is taken up by vapors in the tank. This action tends to retard the cooling. Also the housing prevents the cooling effect on the tank of occasional showers and of any dew or other moisture which collects on objects during the night.

The average daily increase of pressure due to the thermal expansion of the vapor as shown in Table 1 was calculated from the average temperature variations and does not include the increase of pressure due to the increase of the vapor pressure of the crude oil, which is different for crude oils.

Table 2—Comparative Temperature Data on Three 250-Barrel Lease Tanks Operating Under 16 Ounces Pressure

	Tank painted red	Aluminum painted tank	Housed tank	Atmospheric temperature
Maximum temperature in degrees Fahr.....	127	112	101	93
Minimum temperature in degrees Fahr.....	52	44	45	40
Avg. daily Max. Temp. in degrees Fahr.....	108	92	89	82
Avg. daily Min. Temp. in degrees Fahr.....	60	57	63	58
Avg. daily Temp. variation in vapor space in degrees Fahr.	48	35	26	24
Avg. Temp. of vapor in degrees Fahr.....	84	74.5	76	70
Estimated average daily increase of pressure due to thermal expansion of vapor in lbs. per sq. in.	1.32	1.09	.72	

Actual evaporation tests were not made on these tanks. However, the gage tickets of the oil run from these tanks show the economic value of the aluminum, red, and housed tanks. The oil run varied in gravity from 35.6° A.P.I. to 36.7° A.P.I. the average being about 36° A.P.I. The gage tickets of oil run from each tank during the months of May, June, July, and August show that for the housed tank the average gravity was 36.34° A.P.I., with nine per cent of the oil run being under 36° A.P.I.; for the aluminum painted tank the average gravity was 36.21° A.P.I. with 14 per cent of the oil run being under 36° A.P.I.; and the oil run from the red tank had an average gravity of 36° A.P.I. with 37.5 per cent under 36° A.P.I.

THESE records show conclusively the economic value of the light colors over dark colors for painting tanks; also the value of tank houses.

Although the housed tank showed best results in this test it should be kept in mind that installations must be made with care. First, if the tank is not kept vapor tight the housing, acting similar to a flue, increases the circulation of air in the vapor space above the oil. Second, wood housing is inflammable and becomes a greater fire hazard as the boards become saturated with oil. Third, the space between the tank and housing often becomes a trash heap due to the accumulation of rags, waste, and other refuse, which gives the lease an unsightly appearance as well as increasing the fire hazard.

These tests indicate that it is doubtful if pressure alone or the use of light colored paints, or insulation alone will be the most economic methods of reducing the breathing losses from vapor tight tanks. It is probable that the most effective method will consist of a combination of light colored paints and the holding of suitable pressures on the tanks. The amount of pressure required depends upon the lease operation and the physical characteristics of the oil handled.

Missouri District Jobbers Elect Officers

FESTUS, Mo., Dec. 19.—Despite a heavy rain the previous night, 80 per cent of the members of the Southeastern Missouri Oil Marketers Association attended the regular quarterly meeting here on Dec. 13.

These officers were elected at the meeting to serve during the coming year:

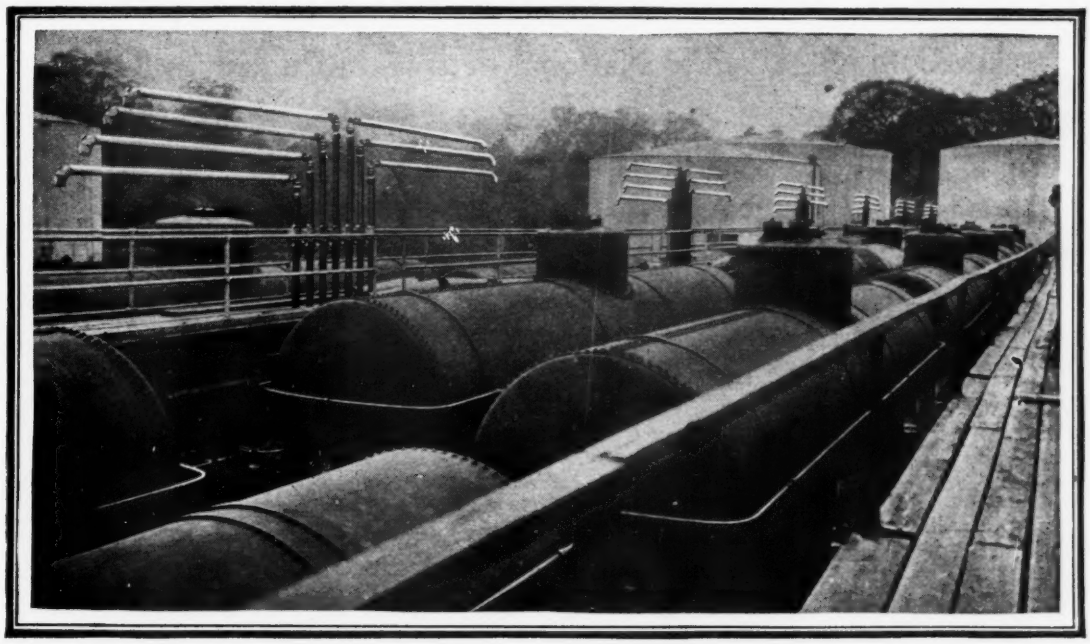
B. F. Davenport, Justrite Oil Co., Poplar Bluff, president; Mr. Davis, Davis Oil Co., Bloomfield, vice president; and E. C. Smith, Kelso Oil Co., Cape Girardeau, secretary-treasurer.

Directors appointed were: H. E. Seely, Lead Belt Oil Co., Farmington; H. G. Simpson, Simpson Oil Co., Charleston; R. T. Brady, Peoples Oil Co., Cape Girardeau; J. E. Perringer, Home Oil Co., Fredericktown; Mr. Lloyd, Lloyd Oil Co., Kennett; Mr. Barger, Fletcher & Barger, Ironton; and H. E. Miller, H. E. Miller Oil Co., Festus.

A. I. M. M. E. Meeting Postponed

FORT WORTH, Dec. 16.—The first meeting of the newly organized Texas-Louisiana section of the American Institute of Mining & Metallurgical Engineers, which had been scheduled for Dec. 15, at Fort Worth, was postponed because of the unavoidable absence of E. O. Bennett, chairman of the section and chief production engineer of the Marland Oil Co. of Texas. It is now planned to hold the postponed meeting at an early date, when engineering problems pertaining especially to west Texas territory will be discussed.

OKLAHOMA CITY, Dec. 17.—C. F. Sloan of Oklahoma City was elected president of the Oklahoma Oil Jobbers Association at its semi-annual meeting here today.



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Compilation Of Mid-Continent Refinery Operations

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Mid-Continent Refinery Operations Week Ended December 16 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	North La.-Ark.	Total Week Ended Dec. 16	Total Week Ended Nov. 18
Plants Reporting	12	28	27	12	79	79
Crude Capacity (bbls.)	92,000	157,200	104,500	54,900	408,600	408,600
Cracking Capacity	30,700	52,600	16,200	22,700	122,200	122,200
Da. Av. Crude Runs	49,258 — 11.6	102,041 — 5.2	70,513 + 1.6	41,195 + 5.0	263,007 — 3.3	261,765
Da. Av. Other Oils	4,182 — 49.8	2,208	4,661 — 19.5	1,367 + 2.4	12,418 + 35.4	15,396
GASOLINE—Gallons						
Stocks, Dec. 9	10,944,000	36,174,000	17,820,000	3,333,000	68,271,000	61,498,000
Prod. 12-9 to 12-16	7,228,000 — 2.7	15,821,000 — 1.7	7,700,000 — 3.3	3,356,000 — 2.4	34,105,000 — 2.3	37,965,000
Ship. 12-9 to 12-16	7,191,000 + 1.1	13,326,000 — 4.6	6,855,000 — 13.8	3,255,000 — 10.3	30,627,000 — 6.2	36,040,000
Stocks, Dec. 16	10,981,000 + 0.3	38,669,000 + 6.9	18,665,000 + 4.7	3,444,000 + 3.0	71,749,000 + 5.1	63,423,000
Ratio Sales to Prod.	99.5%	84.2%	89.0%	97.0%	89.8%	94.9%
KEROSENE—Gallons						
Stocks, Dec. 9	4,643,000	7,088,000	2,071,000	673,000	14,475,000	12,036,000
Prod. 12-9 to 12-16	1,282,000 — 20.5	2,705,000 — 3.8	1,494,000 + 17.3	664,000 + 4.6	6,145,000 — 3.0	6,781,000
Ship. 12-9 to 12-16	1,620,000 + 29.0	2,447,000 — 14.6	1,526,000 + 5.9	655,000 — 22.5	6,248,000 — 2.5	6,045,000
Stocks, Dec. 16	4,305,000 — 7.3	7,346,000 + 3.6	2,039,000 — 1.5	682,000 + 1.3	14,372,000 — 0.7	12,772,000
Ratio Sales to Prod.	126.4%	90.5%	102.1%	98.6%	101.7%	89.1%
STOVE DISTILLATE—Gallons						
Stocks, Dec. 9	4,211,000	5,701,000	1,775,000	41,000	11,728,000	14,243,000
Prod. 12-9 to 12-16	150,000 — 15.3	890,000 +106.0	262,000 + 4.8	25,000 — 59.0	1,327,000 + 44.2	1,156,000
Ship. 12-9 to 12-16	761,000 + 22.2	929,000 — 14.6	424,000 — 36.5	11,000 — 77.6	2,125,000 — 12.5	1,440,000
Stocks, Dec. 16	3,600,000 — 14.5	5,662,000 — 0.7	1,613,000 — 9.1	55,000 + 34.1	10,930,000 — 6.8	13,959,000
Ratio Sales to Prod.	507.3%	104.4%	161.8%	44.0%	160.1%	124.6%
GAS OIL—Gallons						
Stocks, Dec. 9	8,308,000	41,107,000	15,573,000	7,917,000	72,905,000	77,068,000
Prod. 12-9 to 12-16	1,232,000 — 10.7	1,607,000 — 9.1	837,000 — 13.8	1,696,000 + 8.0	5,372,000 — 5.6	6,306,000
Ship. 12-9 to 12-16	1,549,000 — 12.7	2,293,000 — 7.2	2,409,000 + 0.2	2,234,000 + 8.3	8,485,000 — 2.6	5,459,000
Stocks, Dec. 16	7,991,000 — 3.8	40,421,000 — 1.7	14,001,000 — 10.1	7,379,000 — 6.8	69,792,000 — 4.3	77,915,000
Ratio Sales to Prod.	125.7%	142.7%	287.8%	131.7%	157.9%	86.6%
FUEL OIL—Gallons						
Stocks, Dec. 9	16,051,000	40,832,000	38,176,000	9,380,000	104,439,000	105,989,000
Prod. 12-9 to 12-16	5,300,000 — 14.0	6,802,000 — 6.7	9,621,000 + 0.2	6,061,000 + 8.6	27,784,000 — 3.0	27,963,000
Ship. 12-9 to 12-16	6,035,000 — 3.7	7,888,000 — 10.3	8,256,000 + 5.3	5,890,000 + 14.4	28,069,000 + 0.1	31,505,000
Stocks, Dec. 16	15,316,000 — 4.6	39,746,000 — 2.7	39,541,000 + 3.6	9,551,000 + 1.8	104,154,000 — 0.3	120,447,000
Ratio Sales to Prod.	113.9%	116.0%	85.8%	97.2%	101.0%	112.7%

Gasoline Produced by Various Methods, Week Ended December 16

	Kansas	% of Total	Oklahoma	% of Total	Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	5,185,000	71.7	11,781,000	74.5	6,449,000	83.8	1,514,000	45.1	24,929,000	73.1
Cracked	1,459,000	20.2	2,872,000	18.1	951,000	12.3	1,358,000	40.5	6,640,000	19.5
Natural	584,000	8.1	1,168,000	7.4	300,000	3.9	484,000	14.4	2,536,000	7.4
Total	7,228,000		15,821,000		7,700,000		3,356,000		34,105,000	

+ or — columns are % change over previous week.

Stocks of All Products, Except Gasoline, Decline

Staff Special—By Telegraph
TULSA, Dec. 19

WITH the exception of gasoline, stocks of all principal commodities in the Mid-Continent were reduced during the second week in December, according to reports to NATIONAL PETROLEUM NEWS from 79 plants with a still capacity of 408,600 barrels per day. The heaviest reduction in stocks was made in gas oil, shipments from all plants were 58 per cent greater than production during the week cutting reserves 3,000,000 gallons.

Gasoline shipments dropped off 2,000,000 gallons to 30,627,000 gallons. Kansas refiners reported a slight increase in gasoline movement, but all other groups showed losses. Gasoline production was reduced approximately

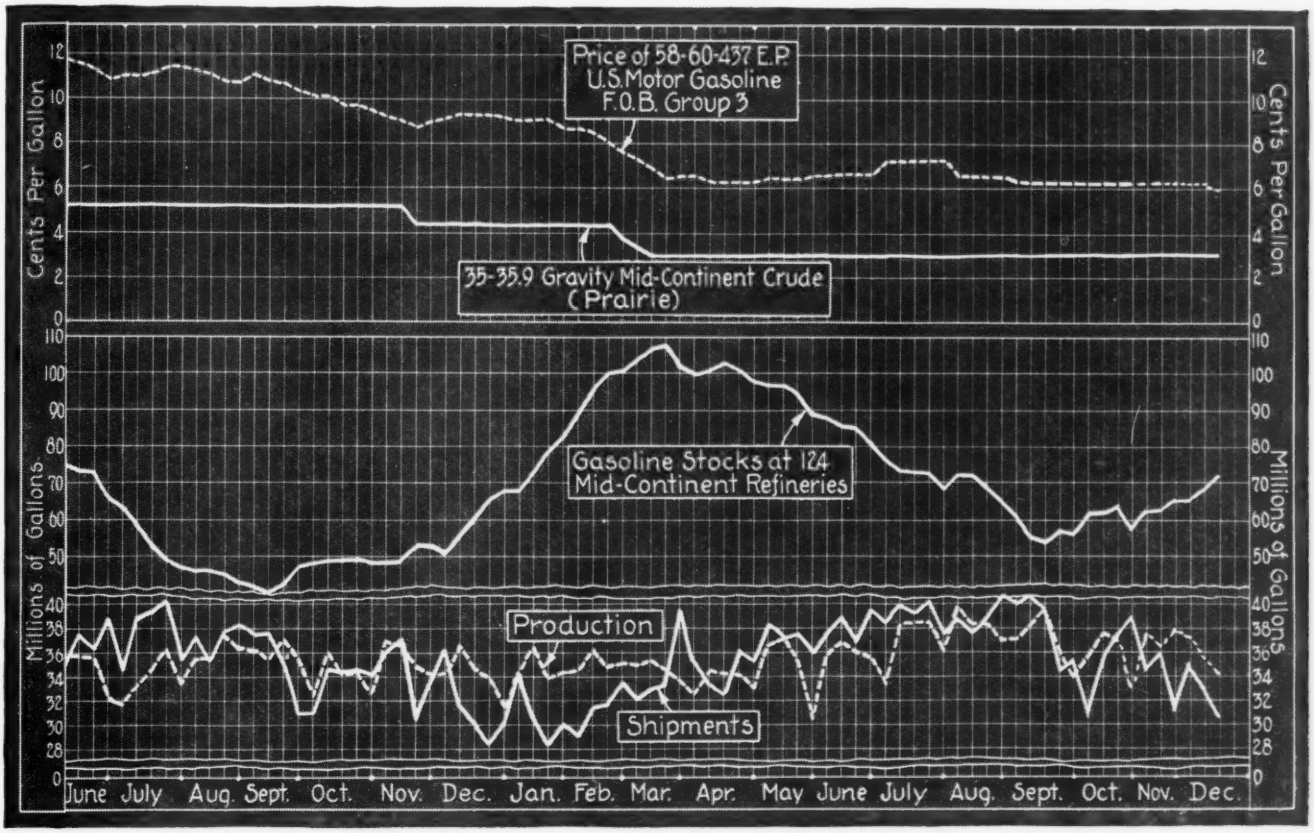
Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended Dec. 16. Change in stocks figured from Nov. 18.

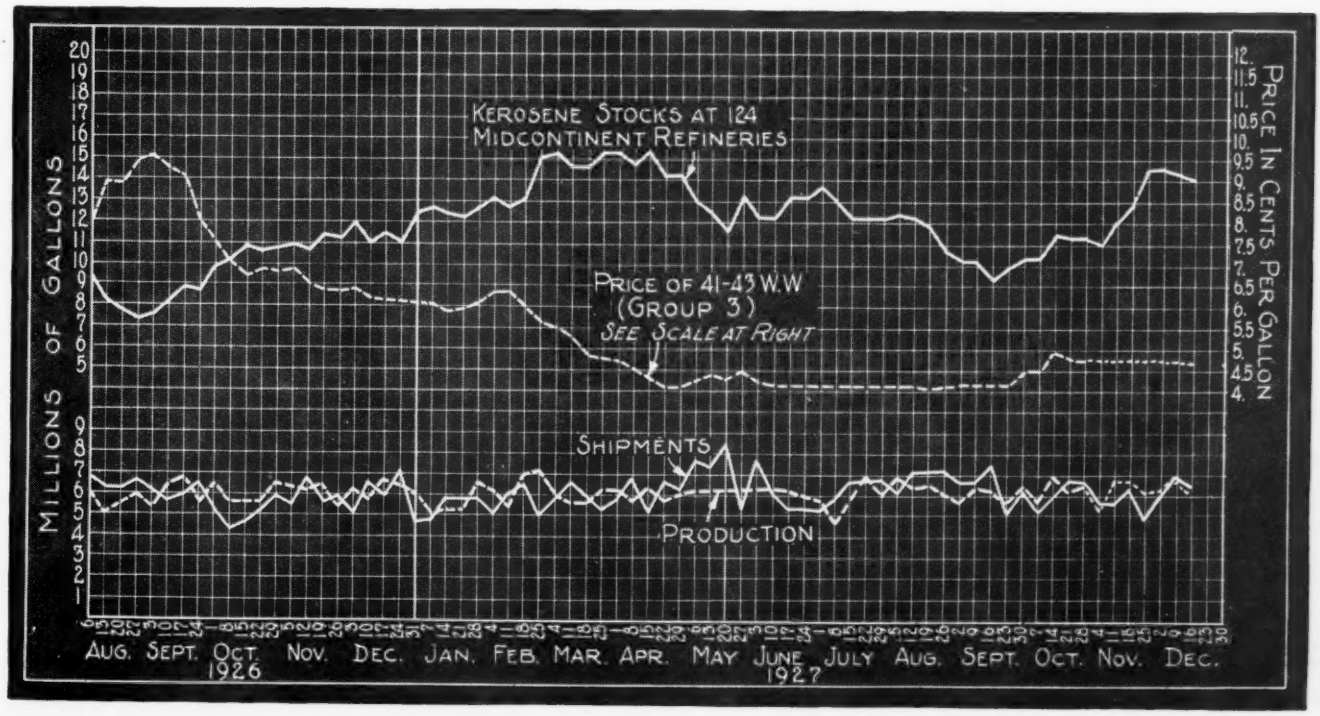
	Gallons
GASOLINE	
Production	138,076,000
Shipments	129,750,000
Net change in stocks	8,326,000
Ratio sales to production	94.0%
KEROSENE	
Production	25,329,000
Shipments	23,729,000
Net change in stocks	1,600,000
Ratio sales to production	93.7%
STOVE DISTILLATE	
Production	4,581,000
Shipments	7,610,000
Net change in stocks	— 3,029,000
Ratio sales to production	166.1%
GAS OIL	
Production	25,937,000
Shipments	34,060,000
Net change in stocks	— 8,123,000
Ratio sales to production	131.3%
FUEL OIL	
Production	108,932,000
Shipments	107,225,000
Net change in stocks	1,707,000
Ratio sales to production	98.4%

Barometer of Mid-Continent Refinery Market—Week Ending December 16

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 124 Plants to National Petroleum News

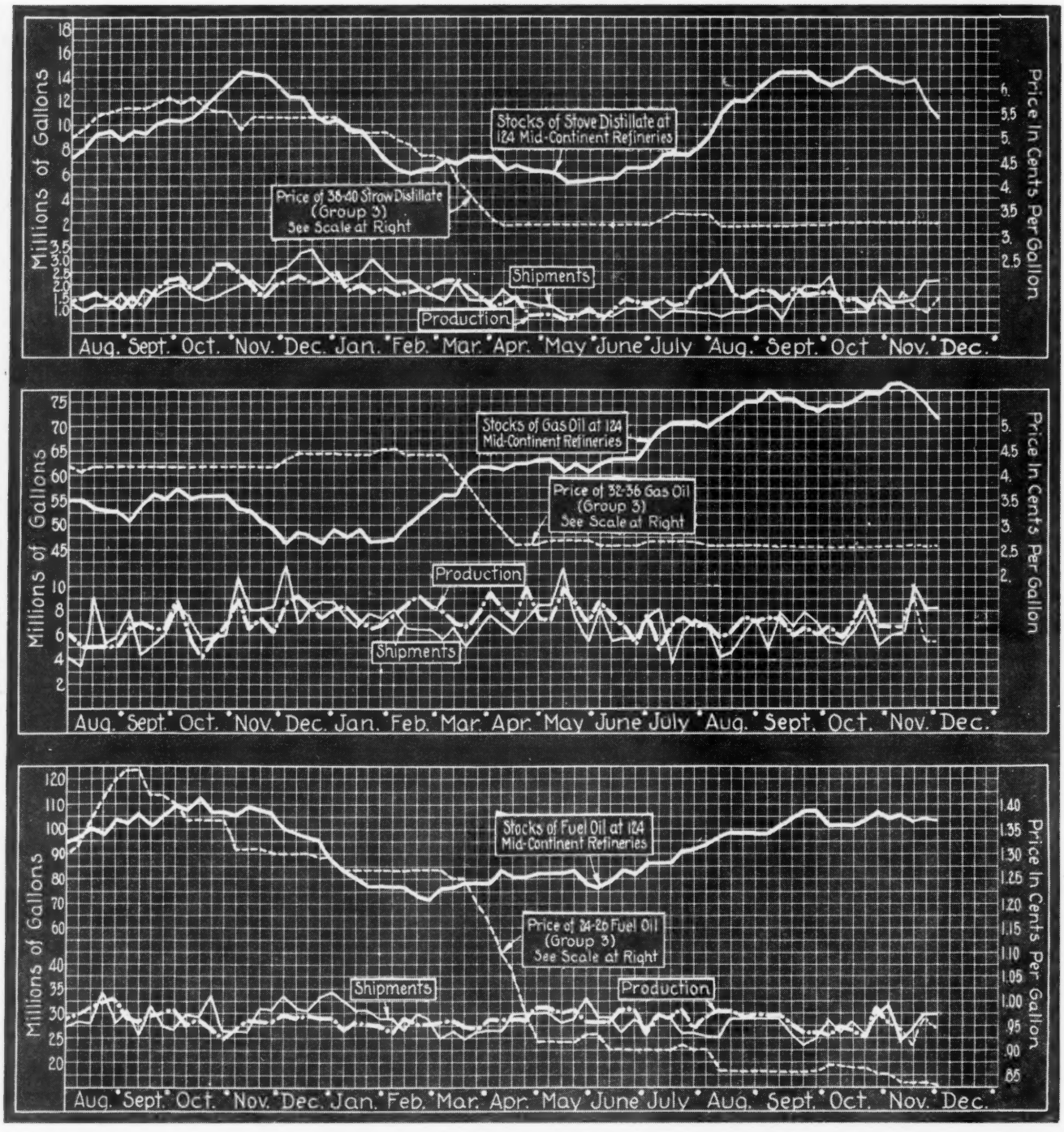

Price of 58-60-437 E.P. U.S. Motor Gasoline F.O.B. Group 3
35-35.9 Gravity Mid-Continent Crude (Prairie)
Cents Per Gallon
Gasoline Stocks at 124 Mid-Continent Refineries
Production
Shipments
Millions of Gallons
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date shown in table on opposite page


KEROSENE STOCKS AT 124 MIDCONTINENT REFINERIES
PRICE OF 41-43 W.W (GROUP 3) SEE SCALE AT RIGHT
SHIPMENTS
PRODUCTION
MILLIONS OF GALLONS
PRICE IN CENTS PER GALLON
AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.
1926
1927

Barometer of Mid-Continent Refinery Market—Week Ending December 16

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 124 Plants to National Petroleum News


Millions of Gallons
Price In Cents Per Gallon
Stocks of Stove Distillate at 124 Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) See Scale at Right
Shipments
Production
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct Nov. Dec.
Millions of Gallons
Price In Cents Per Gallon
Stocks of Gas Oil at 124 Mid-Continent Refineries
Price of 32-36 Gas Oil (Group 3) See Scale at Right
Production
Shipments
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
Millions of Gallons
Price In Cents Per Gallon
Stocks of Fuel Oil at 124 Mid-Continent Refineries
Price of 34-26 Fuel Oil (Group 3) See Scale at Right
Shipments
Production
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

800,000 gallons to 34,105,000 gallons.

Kansas refiners shipped 99.5 per cent of their production of gasoline during the week ending Dec. 16. Oklahoma refiners shipped 84.2 per cent of their production, north and central Texas, 89.0 per cent, and north Louisiana and Arkansas, 97 per cent. For the field as a whole gasoline shipments were 89.8 per cent of production, and stocks were increased 3,478,000 gallons. Total stocks at close of week were 71,749,000 gallons, representing 16.4 days' day supply at the current rate of shipment.

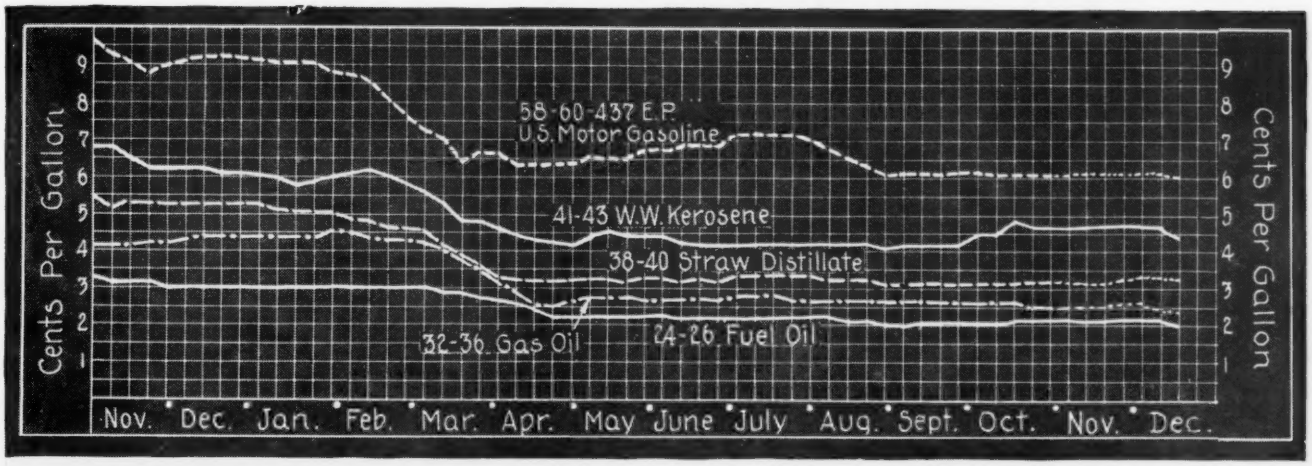
Daily crude runs at all reporting plants were reduced 8,975 barrels daily average to 263,007 barrels. Runs of partly refined oils were increased 3,245 barrels daily average to 12,418 barrels. Kansas and Oklahoma refiners reported substantial reductions in still charges while Texas and north Louisiana and Arkansas refiners showed increases.

Kerosene shipments dropped off slightly but the decrease in production was sufficient to enable refiners to reduce stocks 100,000 gallons. Total kerosene stocks were 14,372,000 gallons.

The heavy demand for stove distillate continued enabling refiners to reduce their stocks 800,000 gallons. Production was increased 400,000 gallons to 1,327,000 gallons while shipments were 2,125,000 gallons. Total stocks were 10,930,000 gallons, almost exactly the amount held in reserve by the same group of refiners a year ago.

Gas oil shipments were 8,485,000

Current Prices of Principal Mid-Continent Refined Products


Cents Per Gallon
Cents Per Gallon
58-60-437 E.P. U.S. Motor Gasoline
41-43 W.W. Kerosene
38-40 Straw Distillate
32-36 Gas Oil
24-26 Fuel Oil
Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

Prices shown are on Group 3 basis and extended to date shown in Refinery Market Tables in Market Section of this Issue

gallons and production 5,372,000 gallons, bringing stock down to 69,792,000 gallons.

Fuel oil demand showed virtually no change from the previous week. Total shipments were 28,069,000 gallons, as compared with 28,054,000 gallons in the week ending Dec. 9. Production of fuel oil was off 1,000,000 gallons as a result of the lower crude runs to 27,784,000 gallons. Total fuel oil stocks were 104,154,000 gallons, a reduction of 300,000 gallons.

Equipment Men Take Mail Ballot On Exhibition Place

CHICAGO, Dec. 17

MANUFACTURERS and marketers of oil handling equipment are taking a mail ballot to determine where they want to exhibit their merchandise and how often. A questionnaire was sent out Dec. 12 by the National Oil Equipment and Exhibitors' Association. Incomplete returns from the questionnaire indicate that the equipment people want to exhibit their wares only once each year and want that to be in February or March.

The association of equipment men is about one year old. The first meeting held was in Atlantic City during the 1926 fall convention of the late National Petroleum Marketers Association. The exhibitors got together at the call of an N.P.M.A. official to work out matters of mutual advantage and the organization became permanent.

E. G. Weimer of the American Can Co., 104 S. Michigan ave., Chicago, is the unpaid secretary of the organization. He is compiling the answers to the questionnaire and tabulating the data. The movement began early in November during the meeting of the American Oil Men's Association at West Baden, Ind. The exhibitors assembled in the West Baden Springs hotel and almost decided that once a year was often enough to exhibit. But they left the matter open until those not present could be heard from by letter. Here are the three questions of the questionnaire:

"Will our association go on record as opposed to exhibiting at state oil men's meetings or conventions?

"Do you favor exhibiting with a national association once only each year?

"If so, what month or time in the year do you consider best for such a convention?"

About 50 equipment men attended the gathering in West Baden. It was brought out that the expense of exhibiting at a state convention was almost as great as at a national meeting, and some of the equipment men did not know where the cost might run with an oil association in nearly every state and meetings coming closer and closer together. Some favorable comment was heard in regard to state meetings. The point was brought out that a great many oil men attended state meetings who never are seen at a national convention. But when a vote was taken, the majority was opposed to exhibiting equipment at state meetings.

A resolution was adopted at West Baden, favoring only one big equipment exhibit a year, and that with the American Oil Men's Association—the only jobber's organization now fostering equipment exhibits at its meetings. When the answers to the questionnaires are tabulated, the popular attitude toward exhibiting at conventions will be a matter of record among the equipment men.

"Up to the present time", Mr. Weimer said Friday, when less than half the questionnaires had been returned, "the members of the organization are voting four to one opposed to exhibiting at state conventions. They are 100 per cent in

N. P. N. Passenger Car Capacity Charts

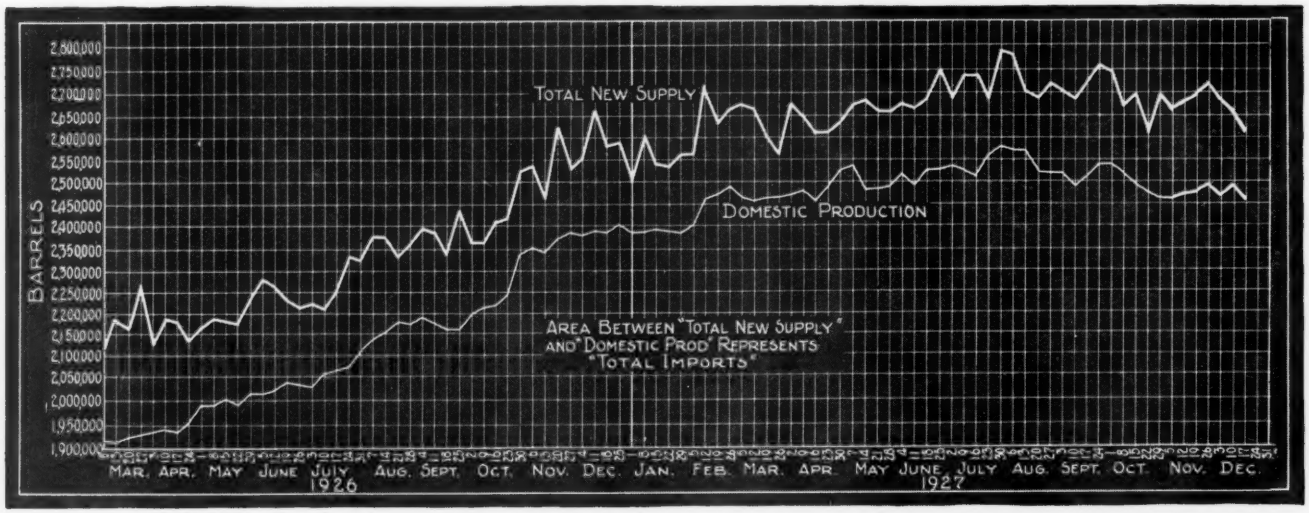
THE chart of passenger car capacities and alcohol solutions compiled by NATIONAL PETROLEUM NEWS may be obtained through the main office at Cleveland, 1213 West Third St. The chart contains the data published in the Dec. 7 issue in the article entitled "Increasing Oil, Grease, Gasoline and Alcohol Sales with Charts." Size of the chart is 8½ by 19½ inches, printed on 4-ply white cardboard. Prices of charts follow:

1 to 10 copies	15 cents each
Lots of 10, from 20 to and including 50 copies	12 cents each
Lots of 10, from 60 to and including 100 copies	10 cents each
Lots of 50, from 150 to and including 500 copies	8 cents each
Lots of 100, from 600 to 1,000 copies	7 cents each

Special price is made on lots of 1,000 or more copies

When remittance is attached, all orders are sent mail or express prepaid anywhere in the United States.

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates below as compiled by American Petroleum Institute

PRODUCTION SUMMARY

	Dec. 17	Dec. 10
Production east of Rockies	1,832,850	1,860,100
Decrease		27,250
Total production in U. S.	2,456,950	2,487,500
Decrease		30,550
Crude oil imports	157,429	167,286
Decrease		9,857
Total crude supply	2,614,379	2,654,786
Decrease		40,407

OKLAHOMA

	Dec. 17	Dec. 10
North Braman	2,850	2,950
South Braman	2.050	2,050
Blackwell	3,850	3,900
Hubbard	2,850	2,850
Thomas	1,950	2,000
Tonkawa	15,550	16,350
Garber	10,050	9,850
Burbank	36,900	37,400
Osage, outside Burbank	29,850	30,050
Watchorn	1,500	1,500
Cushing	21,100	21,000
Yale Jennings	9,100	9,400
Davenport	2,500	2,550
Bristow-Slick	24,600	24,850
North Okmulgee	16,000	16,100
Lyons-Deaner	6,250	6,250
Stroud	1,250	1,250
Cromwell	10,750	10,800
Papoose	5,700	5,750
Wewoka	10,450	10,200
Seminole	55,700	55,750
Bowlegs	112,350	118,150
Searight	22,100	23,450
Little River	40,300	38,900
Earlsboro	150,450	159,300
Duncan district	6,700	6,750
Graham	6,550	6,450
Fox	1,900	1,900
Healdton	14,700	14,600
Hewitt	9,400	9,300
Scholem Alechem	12,400	12,300
Others	72,650	72,300
Total Oklahoma	720,300	736,200
Decrease		15,900

KANSAS

Greenwood County	31,100	31,300
Florence-Covert	1,400	1,500
Peabody-Elbing	3,750	3,850
Eldorado-Towanda	14,200	14,250
Augusta-Fox-Bush	4.150	4.200
Rainbow Bend	2,100	2,200
Russell	2,250	2,250
Churchill	12,600	14,000
Others	33,500	32,500
Total, Kansas	105,050	106,050
Decrease		1,000

NORTH LOUISIANA

Homer	4,550	4,600
Haynesville	6,750	6,800
Caddo, light	11,750	12,050
Caddo, heavy	3,950	4,100
De Soto, Red River	4,200	4,100
Elm Grove	650	700
Bellevue	1,200	1,050
Cotton Valley	4,900	5,000
Urania	8,500	8,500
Pleasant Hill	750	750
Total, North Louisiana	47,200	47,650
Decrease		450

ARKANSAS

El Dorado	6,500	6,100
Smackover, light	9,200	9,300
Smackover, heavy	72,450	73,350
Stephens	1,150	1,150
Nevada	3,150	3,450
Lisbon	2,650	2,650
Others	100	100
Total, Arkansas	95,200	96,100
Decrease		900

TEXAS (Outside Gulf Coast)

	Dec. 17	Dec. 10
Panhandle District		
Hutchinson County	56,350	57,800
Carson County	7,500	8,100
Gray County	20,100	19,300
Wheeler County	1,400	1,250
Others	50	50
Total, Panhandle District	85,400	86,500
Decrease		1,100
North Texas		
Burkburnett	11,900	12,000
Electra	11,750	11,950
Iowa Park and K-M-A	1,900	1,900
Wilbarger	11,250	11,400
Archer County	23,000	23,500
Montague-Cooke	15,500	15,750
Others	700	700
Total N. Texas	76,000	77,200
Decrease		1,200
West Central Texas		
Stephens County	7,950	7,900
Eastland-Desdemona	9,000	8,650
Brown County	17,500	18,000
Coleman County	1,050	1,150
Callahan County	4,200	4,150
Shackleford County	5,100	5,300
Young County	10,150	9,750
Throckmorton County	1,150	1,300
Palo Pinto County	450	450
Others	1,600	1,450
Total, W. Central Texas	58,150	58,100
Increase		50
West Texas		
Jones County	1,450	1,500
Mitchell and Scurry Counties	3,400	3,500
Howard County	5,950	6,250
Reagan County	22,950	22,950
Crane and Upton Counties	121,100	127,700
Crockett County	3,500	2,700
Pecos County	45,300	54,200
Winkler	54,300	50,500
Others	2,700	2,500
Total, W. Texas	260,650	271,800
Decrease		11,150
East Central Texas		
Mexia	8,450	8,300
Currie	600	550
Richland	700	700
Wortham	2,300	2,400
Corsicana-Powell	13,150	13,300
Nigger Creek	2,050	2,050
Total East Central Texas	27,250	27,300
Decrease		50
Southwest Texas		
Luling	14,250	14,500
Lytton Springs	1,600	1,600
Somerset	850	850
Laredo District	7,500	7,850
Piedras Pintas	.....	.....
Dale	400	400
Others	400	400
Total, Southwest Texas	25,000	25,600
Decrease		600
Total, Texas (Outside Gulf Coast)	532,450	546,500
Decrease		14,050

GULF COAST

	Dec. 17	Dec. 10
Coastal Texas		
West Columbia	8,600	8,500
Damon Mound	800	900
Big Creek	2,450	2,500
Boling	2,750	2,550
Blue Ridge	4,200	4,000
Pierce Junction	15.300	13,400
Humble	1,950	1,800
Goose Creek	7,650	7,800
South Liberty	2,300	2,300
Hull	12,700	13,950
Saratoga	1,000	1,050
Batson	1,300	1,250
Sour Lake	3,900	3,900
Spindletop	55,000	55,050
Orange County	3,850	3,900
Others	3,700	3,700
Total, Coastal Texas	127,450	126,550
Increase		900
Coastal Louisiana		
Vinton	4,850	4,800
Lockport	5,100	5,250
Evangeline	1,200	1,200
Edgerly	1,500	2 100
Others	1,600	1,250
Total, Coastal Louisiana	14,250	14,600
Decrease		350
Total, Gulf Coast	141,700	141,150
Increase		550

ROCKY MOUNTAIN

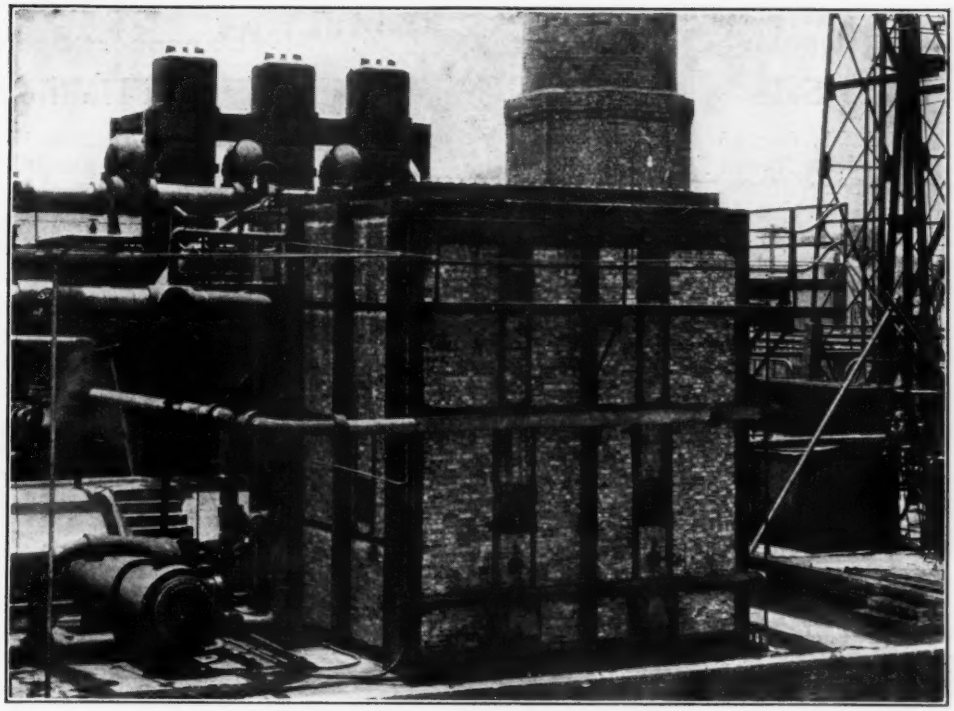
Wyoming		
Salt Creek	42,100	36,300
Grass Creek	2,450	2,350
Elk Basin	800	1,000
Big Muddy	2,750	2,800
Lost Soldier	2,650	2,550
Rock River	2,750	2,700
Lance Creek	1,050	1,100
Teapot Dome	.....	.....
Others	3,350	3,500
Total, Wyoming	57,900	52,300
Increase		5,600
Montana		
Cat Creek	1,900	1,900
Sunburst	11,000	11,000
Others	150	150
Total, Montana	13,050	13,050
Colorado		
Moffat (Craig)	1,150	1,200
Fort Collins	3,050	2,650
Florence	700	1,050
Others	1,950	1,950
Total, Colorado	6,850	6,850
New Mexico		
Table Mesa	.....	100
Artesia	1,400	1,400
Hogback	650	600
Rattlesnake	.....	50
Others	100	100
Total, New Mexico	2,150	2,250
Decrease		100
Total, Rocky Mountain	79,950	74,450
Increase		5,500

CALIFORNIA

	Dec. 17	Dec. 10
Santa Fe Springs	38,500	38,500
Long Beach	112,000	112,000
Huntington Beach	61,000	62,000
Torrance	20,000	20,000
Dominguez	14,500	14,500
Rosecrans	8,500	9,000
Inglewood	32,000	32,000
Midway-Sunset	81,000	81,000
Ventura Avenue	53.600	51.900
Seal Beach	43.000	46.000
Others	160,000	160,500
Total, California	624,100	627,400
Decrease		3,300

EASTERN

(Including Ill., Ind., Ky., Ohio, W. Va., Pa., and N. Y.)	111,000	112,000
Decrease		1,000



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CONDENSERS COOLING TOWERS
ECONOMIZERS EVAPORATORS
EXPANSION JOINTS FEED WATER HEATERS

East Burbank Popular At Osage Lease Sale

TULSA, Dec. 15

The innovation of permitting initial bids of $100 and the giving of five year drilling time on leases brought forth bids on all except seven of 125 tracts offered at the auction of Osage oil leases at Pawhuska Dec. 12.

Bidding on tracts east of Range 7 was not spirited, the high price being $4,350 paid by the Peters Petroleum Corp. and the Producers and Refiners Corp. for the N.E. of 22-27-11, which tract is offset by production to the south.

The high price of the sale was $600,000 which the Lewis Gas Products Co. paid for the S.W. of 2-26-6 offsetting to the north the recent extension of the Shidler pool in Sect. 11 of the same township. The Carter Oil Co. paid $465,000 the second high price of the day, for the S.E. of 3-26-6 a diagonal offset to the same production.

A complete list of the tracts sold together with the prices paid and the successful bidders follows.

A. E. DAVENPORT

Davenport Spends 18 Days At Hunting Lodge

CHICAGO, Dec. 15.—A. E. Davenport, head of the Oil Products Appliance Co., Maywood, Ill., a Chicago suburb, was from Nov. 5 to Nov. 23 in the Canadian woods near Blackville, New Brunswick, 20 miles from the railroad. This is the eighth consecutive year that he and Mrs. Davenport have spent their vacation at their lodge.

Mr. Davenport took to the tall timber immediately after the West Baden convention of the American Oil Men's Association. He was accompanied by J. W. Sixeas, president of the West Madison State bank, and F. J. Brichacek, president of the Universal Automobile Supply Co. None of the men shaved until they broke camp.

Two moose, two deer and three wild cats was the bag. Mr. Davenport brought down one of each.

EAST OF RANGE 7

Tr. No.	Description	Acreage	Bonus	Purchaser
1	NW 3-21-11	160	$ 100	Winona Oil Co.
2	NE 4-21-11	160	100	Winona Oil Co.
3	NE 15-21-11	160	350	Peters Petroleum Corp.
4	SE 15-21-11	160	400	Peters Petroleum Corp.
5	SW 16-21-11	160	100	G. O. Smith and W. S. McCray
6	SW 28-21-11	160	1,600	White Eagle Oil & Refg. Co.
7	NW 33-21-11	160	1,500	Beacon Oil Co.
8	SE 22-22-11	160	400	Ross Branstetter
9	SE 24-22-11	160	400	Penowa Oil Co.
10	SW 28-22-11	160	500	Winona Oil Co.
11	NE 34-22-11	160	500	Peters and Prod. and Refg. Corp.
12	NW 34-22-11	160	1,200	Peters and Prod. and Refg. Corp.
13	NE 22-27-11	160	4,350	Peters and Prod. and Refg. Corp.
14	NW 13-21-10	160	600	T. O. Lilystrand
15	SW 25-22-10	160	550	Indian Territory Illumination Oil Co.
16	NW 15-23-10	160	300	Plains Petroleum Co.
17	SE 15-23-10	160	150	Plains Petroleum Co.
18	SW 23-23-10	160	300	Ray Branstetter
19	NW 29-24-10	160	700	Peters and Prod. and Refg. Corp.
20	SW 29-24-10	160	850	G. V. Labadie
21	SE 34-25-10	160	100	Smith and McCray
22	SW 34-25-10	160	100	Smith and McCray
23	SW 4-21-9	160	650	Plains Petroleum Co.
24	SE 5-21-9	160	600	B. F. Millard et al
25	SE 7-21-9	160	400	Plains Petroleum Co.
26	SW 7-21-9	160	1,100	A. G. Oliphant
27	NE 8-21-9	160	1,800	Ohio-Osage Oil Co.
28	NW 9-21-9	160	4,200	The Texas Co.
29	NE 28-21-9	160	1,700	Winona Oil Co.
30	NW 28-21-9	160	1,700	Winona Oil Co.
31	NE 35-21-9	160	550	Smith and McCray
32	NW 25-22-9	160	250	Peters and Prod. and Refg. Corp.
33	NE 26-22-9	160	100	Peters and Prod. and Refg. Corp.
34	SW 12-23-9	160	700	A. G. Oliphant
35	NW 15-23-9	160	2,100	White Eagle Oil & Refg. Co.
36	SE 26-23-9	160	700	B. F. Millard
37	SW 26-23-9	160	700	B. F. Millard
38	SW 30-23-9	160	100	L. O. Fink
39	NE 32-23-9	160	100	A. M. Barbour
40	SE 9-25-9	160	600	Smith-Leahy
41	SE 34-25-9	160	1,500	Link Oil Co.
42	SE 8-26-9	160	400	Plains Petroleum Co.
43	SW 8-26-9	160	500	Peters and Prod. and Refg. Corp.
44	SW 16-26-9	160	100	Smith and McCray
45	NW 12-26-9	160	100	Smith and McCray
48	SW 26-28-9	160	100	Plains Petroleum Co.
49	SW 27-28-9	160	200	Plains Petroleum Co.
50	NE 28-28-9	160	400	Peters and Prod. and Refg. Corp.
51	SW 11-21-8	160	700	B. F. Millard
52	NW 14-21-8	160	1,700	Pueblo P. Co. and Prod. & Refg. Co.
53	NE 17-22-8	160	800	Peters and Prod. and Refg. Corp.
54	NW 17-22-8	160	3,100	Prairie Oil and Gas Co.
55	SW 26-22-8	160	1,500	C. E. Roth
56	NW 35-22-8	160	3,100	Skelly Oil Co. and Ohio Oil Co. and Morris estate
57	NE 19-23-8	160	300	J. A. Davis
58	SE 19-23-8	160	200	James B. Bragassa
61	NW 1-24-8	160	1,400	The Texas Co.
62	SW 1-24-8	160	1,000	White Eagle Oil and Refg. Co.
63	NE 9-24-8	160	300	Plains Petroleum Co.
64	NW 9-24-8	160	100	Plains Petroleum Co.
65	NE 30-24-8	160	500	B. F. Millard
66	SE 14-25-8	160	100	Plains Petroleum Co.
67	NE 17-25-8	160	1,600	A. G. Oliphant

WEST OF RANGE 7

Tr. No.	Description	Acreage	Bonus	Purchaser
68	NW 17-25-8	160	1,300	Prairie Oil & Gas Co.
70	NE 2-25-7	160	$ 1,900	The Texas Co.
71	NW 2-25-7	160	1,700	Comar Oil Co.
72	SE 2-25-7	160	1,800	Peters and Prod. and Refg. Corp.
73	SW 2-25-7	160	1,800	The Texas Co.
74	NE 4-26-7	160	1,300	New England Oil and P. L. Co.
75	NW 4-26-7	160	800	Plains Petroleum Co.
76	SE 4-26-7	160	500	Empire Oil and Refg. Co.
77	SW 4-26-7	160	300	Peters and Prod. and Refg. Corp.
78	SE 12-26-7	160	5,100	Prairie and C. E. Roth
79	NE 13-26-7	160	5,000	Prairie Oil and Gas Co.
80	NW 13-26-7	160	3,600	Wrightsman Petroleum Corp.
81	NE 15-26-7	160	1,100	Prairie Oil and Gas Co.
82	NW 15-26-7	160	900	New England Oil and P. L. Co.
83	SE 15-26-7	160	2,200	White Eagle Oil and Refg. Co.
85	NW 10-27-7	160	100	National Refining Co.
86	SE 10-27-7	160	400	New England Oil and Refg. Co.
87	SW 10-27-7	160	100	Peters and Prod. and Refg.
88	NW 20-27-7	160	100	Mid-Con. Oil Corp.
89	SW 20-27-7	160	900	White Eagle Oil and Refg. Co.
90	NE 26-27-7	160	150	National Refining Co.
93	SW 26-27-7	160	100	L. O. Fink
94	NE 30-27-7	160	600	White Eagle Oil and Refg. Co.
95	NW 30-27-7	160	1,500	White Eagle Oil and Refg. Co.
96	NE 7-27-7	160	300	National Refining Co.
97	NW 7-28-7	160	300	Phillips Petroleum Co.
98	SE 7-28-7	160	650	Peters and Prod. and Refg.
99	SW 7-28-7	160	400	Phillips Petroleum Co.
100	NE 11-28-7	160	600	White Eagle Oil and Refg. Co.
101	NW 11-28-7	160	700	The Texas Co.
102	SE 11-28-7	160	900	Prairie Oil and Gas Co.
103	SW 11-28-7	160	1,000	The Texas Co.
104	NE 19-28-7	160	700	Phillips Petroleum Co.
105	NW 19-28-7	160	1,000	Phillips Petroleum Co.
106	SE 19-28-7	160	1,600	The Texas Co.
107	SW 19-28-7	160	2,100	White Eagle Oil and Refg. Co.
108	NE 20-29-7	160	1,000	White Eagle Oil and Refg. Co.
109	NW 20-29-7	160	850	Phillips Petroleum Co.
110	SE 20-29-7	160	1,200	Peters and Prod. and Refg.
111	SW 20-29-7	160	1,100	Phillips Petroleum Co.
112	NW 2-26-6	160	600	Phillips Petroleum Co.
113	SW 23-29-9	160	350	Phillips Petroleum Co.
114	NW 2-25-6	160	18,500	Indian Territory Illuminating Oil Co.
115	SW 2-25-6	160	17,500	Prairie and Peters
116	NW 2-26-6	160	52,000	Phillips Petroleum Co.
117	SW 2-26-6	160	600,000	Lewis Gas Prod. Co.
118	SE 3-26-6	160	465,000	Carter Oil Co.
119	NE 10-26-6	160	95,000	Prairie Oil and Gas Co.
120	NW 13-26-6	160	37,000	Lewis Oil Co.
121	NE 14-26-6	160	150,000	The Texas Co.
122	SW 16-27-6	160	4,200	Prairie and Oliphant
123	NW 21-27-6	160	300,000	Prairie and Oliphant
124	NW 27-27-6	160	20,000	The Texas Co.
125	NE 28-27-6	160	405,000	Kewanee Oil and Gas Co.

Acreage west of range 7	8,480
Acreage west of range 7	10,400
Total bonus west side	$56,150
Total bonus east side	$2,211,500
Total acreage sold	18,880
Total acreage offered	20,000
Total bonus	$2,267,650

Seminole Operators to Continue Ban On Drilling Until March 1

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, Dec. 17

IN THE face of at least seven Wilcox sand pools of one well each in the Seminole territory, development of which would mean that the Mid-Continent industry would continue to play Santa Claus to the public throughout 1928, Seminole operators had no difficulty on Dec. 15 in extending the agreement to keep down drilling in these danger spots.

The present agreement was to Jan. 1. The extension carries it to March 1. The meeting was well attended and the only difference in opinion was as to the length of the extension. Some wanted to make it six months, some thought 30 days would do. All, however, were for some kind of extension.

The agreement imposes only a friendly obligation upon those who subscribe to it to start no wells not called for by lease obligations in the vicinity of the several wells which have opened pools. The owners of the wells keep their production to 100 barrels per day. This latter promise has been faithfully kept. In fact, it has been more than observed in one instance. The Barnsdall Oil Co., which has a pool-opener in 14-8-5, the township next west of the Bowlegs pool, has shut in its well altogether.

This well remains at total depth of 4296 feet and is about five feet in the beginning of the pay. The big Wilcox pay has not been tapped, the company believes. As it stands, it is a sizable well. It made 1360 barrels in 24 hours just before it was shut in.

In Sec. 16 of the same township and better than two miles from the Barnsdall well, the Indian Territory Illuminating Oil Co. asked the operators' committee and the umpire whether it would hurt any feelings if the I.T.I.O. were to deepen its wildcat, which is in the SE SW of the section. This test has been shut down in the Hunton lime for several months with a hole full of oil. The consent was given, the well will be drilled to the Wilcox and shut in.

The wells of the Barnsdall and Snowden & McSweeney in the 7-6 country, south of the Little River pool, still are highly rated. Barnsdall's well in the SE NW SE of 22-7-6, less than three-fourths of a mile from the Independent Oil & Gas Co.'s shut-in well which opened the pool, is now fishing at 4230 feet. It topped the Viola lime at 4112 feet, the Simpson at 4156 feet, found first oil at 4191 feet and, at the point where it lost the tools, it was making 150 barrels daily, flowing by heads and still in the Simpson. The lime was getting darker at this point and the big pay is believed near. Like the Independent's well, this one will be restricted in output when it gets the Wilcox pay. Independent's well is being held at 100 barrels per day.

SNOWDEN & McSWEENEY'S important well in the NW of 13-7-6, about a mile south of Little River production, was allowed to flow for 16 hours and made 207 barrels. This one also has not reached the real saturation in the Wilcox, being about six inches in that formation. It also is looked upon as a big well when completed.

Seminole production during the week held steadily around 375,000-barrels. As of Dec. 9 and 16, the district added four wells and lost 2,965 barrels. It is unlikely that it will drop below 300,000 barrels by the first of the year, as was the prediction of many amateur forecasters several weeks ago.

There is a sizable program of completions for the next two weeks. The latest compilation on drilling depths shows that, of the 165 operations under way in proven territory, 92 are below 3,700 feet. When these are out of the way, there will be a negligible number of wells left to drill, considering that, of the total operations, 27 are in the classification of rigs, locations and wells shut down.

In the proven territory there was only one outstanding well during the week. The Sinclair Oil & Gas Co.'s No. 1 Sango, SE NE of 2-9-5, Earlsboro field, gradually increased its production until it hit the high mark

Drilling Operations in Oklahoma, Kansas and Texas, Week Ended December 17, 1927

	December 17 — Week Ended — December 10									
	Loc.	Rigs	Drg.	S.D.	Total	Loc.	Rigs	Drg.	S.D.	Total
OKLAHOMA										
Burbank	3	5	17	4	29	3	3	19	4	29
Other Osage	3	7	19	1	30	6	6	22	1	35
Bristow-Cushing	10	9	31	4	54	7	5	30	6	48
North Oklahoma	17	9	71	40	137	13	7	76	37	133
South Oklahoma	4	20	116	36	176	5	21	120	30	176
Muskogee	..	15	38	21	74	..	12	38	22	72
Okmulgee-Bristow	7	32	61	26	126	7	33	64	21	125
Tonkawa	1	1	5	1	8	1	2	4	1	8
Seminole District	16	23	205	17	261	15	25	218	19	277
Total Oklahoma	61	121	563	150	895	57	114	591	141	903
KANSAS	28	50	123	52	253	28	53	104	67	252
TEXAS										
Central	..	116	212	117	445	..	117	199	122	438
Panhandle	..	98	88	79	265	..	94	87	85	266
N. Central	..	44	99	26	169	..	39	99	24	162
West	..	145	192	132	469	..	119	198	119	436
Laredo	..	1	25	19	45	..	1	25	19	45
Total Texas	..	404	616	373	1,393	..	370	608	369	1,347
New Mexico	..	1	25	19	45	..	2	17	27	46
GRAND TOTAL	89	577	1,322	599	2,586	85	539	1,320	604	2,548

Completions in North Louisiana and Arkansas, Week Ended December 15, 1927

Company	Well	Location	Depth	Yield
Louisiana—Caddo Parish				
Ohio Oil Co.	E. Plum No. 1	1619	32-25-16	dry, aband.
Morehouse Parish				
Natural Gas Prod. Co.	Tensas Delta No. 10	2220	27-22-4E	4M gas
Richland Parish				
Standard Drilling Co.	Delta Hardwood Lbr. Co.	No. 1 3024	22-16-7E	dry, aband
Moody & Seagraves	Hemlar B-1	20-16-6E	2440	50M gas
Natural Gas & Fuel Corp.	Sartor B-2	19-16-6E	2445	62M gas
East Texas—Marion County (Extension Caddo Parish)				
William Gross	Baker No. 1	John French HRS 2391		20 bbls.
Arkansas—Union County (Galion)				
E. M. Jones	Pumphrey-Crain No. 1	2-17-14	3062	800 bbls.
Rovenger Oil Corpn.	McCain No. 1	4-17-14	3098	salt water, aband

Seminole District Production by Companies and Leases, December 16 and December 9, 1927

Company	Farm	S.T.R.	Dec. 16th No. Wells	Dec. 16th Prod.	Dec. 9th No. Wells	Dec. 9th Prod.
BOWLEGS						
Amerada	Rascoe	15- 8-6	8	3,465	8	3,690
Atlantic	Baker	1- 8-6	4	810	4	844
Atlantic	Fleet	23- 8-6	4	768	4	850
Atlantic	Grayson	12- 8-6	2	1,461	2	1,600
Atlantic	A. Jones	10- 8-6	3	125	3	140
Atlantic	C. Jones	9- 8-6	2	561	2	474
Total Atlantic			15	3,725	15	3,908
Barnsdall	McNac	28- 8-6	1	35	1	35
Barnsdall	Murrow	11- 8-6	4	904	4	1,154
Total Barnsdall			5	939	5	1,189
Carter	Bowlegs	15- 8-6	3	1,450	3	1,380
Carter	Burden	23- 8-6	3	530	3	675
Carter	Harjoche	15- 8-6	6	675	6	845
Carter	Jones	11- 8-6	3	3,200	3	3,270
Carter	Hilly	23- 8-6	2	815	2	930
Carter	Melisse	9- 8-6	1	1,475	1	1,800
Carter	Walker	15- 8-6	3	625	2	615
Carter	McGeisey		1	0	0	0
Carter	Wise	23- 8-6	12	7,610	12	8,270
Total Carter			34	16,379	32	17,800
Empire	Lacey	15- 8-6	6	734	6	683
Empire	Wise	23- 8-6	2	1,105	2	1,162
Total Empire			8	1,839	8	1,815
Gypsy	Bowlegs	22- 8-6	1	317	1	355
Gypsy	Bradley	9- 8-6	1	65	1	52
Gypsy	Brown	33- 8-6	1	47	1	52
Gypsy	Cumse	8- 8-6	4	2,052	4	2,397
Gypsy	Dosar	7- 8-6	1	100	1	0
Gypsy	Grayson	13- 8-6	4	1,985	4	2,167
Gypsy	Harjoche		1	1,360	1	260
Gypsy	Henderson		1	0	0	0
Gypsy	Jones	11- 8-6	1	677	1	0
Gypsy	Walker	15- 8-6	8	2,710	8	2,765
Gypsy	Wise	23- 8-6	3	325	3	55
Total Gypsy			26	9,638	25	8,083
I. T. I. O.	Barnett	24- 8-6	2	597	2	624
I. T. I. O.	Billington	22- 8-6	5	952	5	689
I. T. I. O.	Bowlegs	22- 8-6	11	1,146	11	1,267
I. T. I. O.	Davis	13- 8-6	4	1,969	4	2,046
I. T. I. O.	Fay	18- 8-6	6	4,541	6	4,933
I. T. I. O.	Goforth	15- 8-6	11	2,114	11	1,808
I. T. I. O.	Hull	26- 8-6	1	167	1	0
I. T. I. O.	Livingston	15- 8-6	11	5,225	11	5,114
I. T. I. O.	Lizzie	11- 8-6	2	887	2	973
I. T. I. O.	Walker	15- 8-6	8	1,184	8	1,103
I. T. I. O.	Wilmont	15- 8-6	4	1,404	4	1,029
I. T. I. O.	Work		1	0	0	0
I. T. I. O.	Youngblood	22- 8-6	2	431	2	11
Total I. T. I. O.			68	20,617	67	19,897
McCulloch	Bowlegs	22- 8-6	3	240	3	285
Magnolia	Davis BF	13- 8-6	1	782	1	644
Magnolia	Davis M	13- 8-6	1	620	1	644
Magnolia	Hammond	10- 8-6	2	16	2	0
Magnolia	Rhodes	10- 8-6	2	346	2	1,027
Magnolia	Van Buskirk	9- 8-6	0	0	1	416
Total Magnolia			6	1,764	7	2,731
Mid-Continent	Baker	10- 8-6	4	2,375	4	2,372
Mid-Continent	Bowlegs	22- 8-6	1	135	1	150
Mid-Continent	Smith	12- 8-6	4	1,015	4	935
Total Mid-Continent			9	3,527	9	2,457
Minnehoma	Bowlegs	15- 8-6	3	215	3	157
Prairie	Gahagan	23- 8-6	4	1,175	4	1,128
Prairie	Harber	10- 8-6	8	4,665	4	3,625
Prairie	Jones	11- 8-6	3	1,210	2	1,890
Prairie	Templeton	12- 8-6	4	4,625	4	4,305
Prairie	Whitney	23- 8-6	4	500	4	170
Total Prairie			23	12,175	21	11,118
Pure	Reed	14- 8-6	15	5,442	15	5,440
Pure	D. Strother	14- 8-6	3	832	3	1,154
Pure	E. Strother		1	5	1	5
Pure	F. Strother	10- 8-6	2	1,033	2	1,197
Total Pure			21	7,312	21	7,796
Roxana	Taylor	16- 8-6	6	1,597	6	1,641
Shaffer	Lacey	14- 8-6	3	612	3	712
Sinclair	Bowlegs	22- 8-6	1	0	1	95
Sinclair	Cumsey	10- 8-6	2	4,590	2	4,495
Sinclair	Ellen	11- 8-6	6	2,781	6	3,120
Sinclair	Harjo	14- 8-6	3	1,140	3	1,295
Sinclair	Jones	8- 8-6	6	6,630	6	5,461
Sinclair	Taylor	10- 8-6	4	4,453	4	4,566
Sinclair	Walker	22- 8-6	4	1,145	4	1,240
Total Sinclair			26	20,739	26	20,282
Texas	Reed	14- 8-6	9	3,865	9	5,545
Tidal	Grayson	13- 8-6	3	1,530	3	1,215
Tidal	Harjoche	10- 8-6	6	2,510	6	2,315
Total Tidal			9	4,040	9	3,530
Twin State	Jones	10- 8-6	2	20	2	60
TOTAL BOWLEGS			287	112,709	287	113,694
LITTLE RIVER						
Amerada	Fore	35- 8-6	2	1,370	1	675
Amerada	Nitey	35- 8-6	4	2,965	4	3,030
Total Amerada			6	4,335	5	3,705
Barnsdall	Hotulke		1	100	0	0
Blackwell	Nitey	35- 8-6	8	4,860	8	5,127
Carter	Fish	1- 7-6	3	2,045	3	1,590
Continental	Cozar	2- 7-6	2	845	2	790
Gypsy	Campbell	36- 8-6	2	365	2	0
Gypsy	Nungee	1- 8-6	1	80	1	60
Gypsy	Pottey	35- 8-6	2	782	2	977
Gypsy	Wadsworth	1- 7-6	1	42	1	15
Total Gypsy			6	1,279	6	1,052
Independent	Harris	23- 7-6	1	108	1	108
I. T. I. O.	Campbell	1- 7-6	1	210	1	231
I. T. I. O.	Dungan	35- 8-6	3	3,532	3	3,644
I. T. I. O.	House-MA	1- 7-6	1	483	1	746
I. T. I. O.	A-House-WE	1- 7-5	1	56	1	70
I. T. I. O.	B-House-WE	2- 7-6	3	2,267	3	2,324
I. T. I. O.	Jackson	1- 7-6	3	2,269	3	2,953
I. T. I. O.	McCulla	1- 7-6	3	1,188	3	1,248
I. T. I. O.	Nitey	2- 7-6	6	1,491	6	2,565
I. T. I. O.	Phoebe-A	36- 8-6	2	822	2	812
I. T. I. O.	Phoebe-B	36- 8-6	3	1,262	3	1,371
I. T. I. O.	Reed	1- 7-6	1	113	1	231
I. T. I. O.	Soketneche	1- 7-6	4	1,237	4	1,554
Total I. T. I. O.			31	19,278	31	17,769
Magnolia	Cruse		1	600	0	0
Mid-Continent	Wadsworth	26- 8-6	7	1,500	7	1,595
Mid-Continent	Smith	12- 8-6	1	50	1	40
Total Mid-Continent			8	1,550	8	1,635
Philmack	Davis	1- 7-6	1	1,785	1	1,340
P & R	Dungan		2	400	0	0
P & R	House	2- 7-6	4	2,800	4	2,360
Roxana	Smith	1- 7-6	1	32	1	52
Sinclair	Cosar	36- 8-6	1	1,345	1	60
Snowden-McSweeney	Tiger	13- 7-6	1	300	1	338
Superior	Wadsworth	1- 7-6	1	10	1	21
Texas	Coker	1- 7-6	3	700	3	835
Tidal	House	1- 7-6	3	1,520	3	2,040
Tidal	Johnson	1- 7-6	1	70	1	72
Total Tidal			4	1,590	4	2,112
TOTAL LITTLE RIVER			85	39,604	81	38,894
EARLSBORO						
Amerada	Anderson	15- 8-6	3	45	3	45
Amerada	Cowden	4- 9-5	8	2,290	8	2,300
Amerada	Rodgers	3- 9-5	3	2,640	3	800
Total Amerada			14	4,975	14	3,145
Barnsdall	Brown	10- 9-5	4	3,229	4	3,056
Barnsdall	Bruner-F	2- 9-6	2	69	2	686
Barnsdall	Bruner-N	11- 9-5	4	1,347	4	3,177
Barnsdall	Cudjo	11- 9-5	1	27	1	29
Barnsdall	Davis-D	11- 9-5	3	2,754	3	2,936
Barnsdall	Davis-J	11- 9-5	4	1,383	4	2,803
Barnsdall	Davis-M	11- 9-5	3	2,786	3	3,087
Barnsdall	Gibson	9- 9-5	7	1,964	7	3,156
Barnsdall	Hearn		1	7	0	0
Barnsdall	Ingram	4- 9-5	7	6,346	7	6,417
Barnsdall	Pack	10- 9-5	4	194	4	208
Barnsdall	Peter	10- 9-5	4	430	4	242
Barnsdall	Sango	2- 9-5	3	1,127	2	767
Barnsdall	Sebolka	15- 9-6	1	889	1	946
Barnsdall	Sullivan-H	11- 9-5	2	127	2	213
Barnsdall	Sullivan	10- 9-5	3	71	3	71
Barnsdall	Watsutke	12- 9-5	4	978	4	1,156
Total Barnsdall			57	23,728	55	28,597
Carter	Davis	13- 9-5	1	1,010	1	1,165
Carter	Payne	12- 9-5	3	980	3	925
Carter	Sango	2- 9-5	3	7,455	3	7,460
Total Carter			7	9,445	7	9,540
Continental	Kays	2- 9-5	2	615	2	565
Continental	Spencer	12- 9-5	4	2,210	4	2,135
Total Continental			6	2,825	6	2,700
Crosbie	Bryant	9 -9-5	2	500	2	450
Empire	Barker	12- 9-5	1	3,502	1	2,575
Empire	Edmundson	3- 9-5	3	1,589	3	2,432
Total Empire			4	5,091	4	5,007
Gypsy	Bruner	10- 8-6	4	4,885	4	5,000
Gypsy	Carter	11- 8-6	10	6,547	10	6,960
Gypsy	Earl		1	0	1	40
Gypsy	Hunick	5- 9-5	1	122	1	430
Gypsy	Noble	12- 9-5	4	5,702	4	6,405
Gypsy	Peter	10- 9-5	6	25	6	197
Gypsy	State	16- 9-6	4	972	4	1,660
Gypsy	Sango	1- 9-5	4	9,962	4	11,307
Total Gypsy			34	28,195	34	31,999
Independent	Bruner	10- 9-5	4	390	4	205
Indep.	Gaines	11- 9-5	2	785	2	3,070
Indep.	Knappen	8- 8-5	5	3,717	5	3,549
Indep.	O'Dell	4- 9-5	4	130	4	100
Indep.	Sullivan	10- 9-5	4	30	4	35
Total Independent			19	5,052	19	6,959
Interocean	Payne	12- 9-5	1	20	1	20
Magnolia	Bryant	9- 9-5	6	2,412	6	2,238
Magnolia	Cowden	4- 9-5	4	73	4	53
Magnolia	Dixon		1	38	1	142
Magnolia	Edmundson	3- 9-5	3	16	3	194
Magnolia	Holmsley	11- 9-5	8	7,167	8	7,913
Magnolia	Ingram	10- 9-5	1	35	1	35
Magnolia	Lena	10- 9-5	3	90	3	84
Magnolia	Seay	12- 9-5	8	1,718	8	1,792
Magnolia	Simpson	10- 9-5	4	334	4	340
Magnolia	Sparks	11- 9-5	7	3,323	7	3,670
Magnolia	Sullivan	12- 9-5	3	1,195	3	1,026
Total Magnolia			48	16,401	48	17,488

(*Continued on Page 43*)

Seminole District Production by Companies and Leases, December 16 and December 9, 1927

(*Continued from Page 42*)

Company	Farm	S.T.R.	Dec. 16th No. Wells	Dec. 16th Prod.	Dec. 9th No. Wells	Dec. 9th Prod.
Mid-Continent	McCumber	9- 9-5	7	1,535	7	1,635
Mid-Kansas	Anderson	14- 9-5	4	424	4	665
Phillips	Dunnaway	15- 9-5	1	27	1	30
Phillips	Graham	9- 9-5	7	20	7	350
Total Phillips			8	47	8	380
Prairie	Baker	23- 9-5	1	50	1	30
Prairie	Davis	13- 9-5	4	1,344	4	1,320
Prairie	Graham-C	3- 9-5	2	710	2	525
Prairie	Graham-O	10- 9-5	4	2,165	4	2,920
Prairie	Stidham	11- 9-5	13	7,130	13	8,725
Total Prairie			24	11,399	24	13,520
Roxana	Bayliss	17- 9-5	1	17	1	17
Roxana	Spencer	12- 9-5	2	2,142	2	326
Total Roxana			3	2,160	3	343
Shaffer	Clark	1- 9-5	4	1,483	4	1,478
Sinclair	Foreman	18- 9-5	1	15	1	15
Sinclair	Hollins	12- 9-5	3	510	3	642
Sinclair	Sango	2- 9-5	1	6,130	1	0
Total Sinclair			5	6,655	5	657
Skelly	Spencer	12- 9-5	2	1,948	2	2,003
Texas	Anderson	2- 9-5	6	1,705	6	1,250
Texas	Brown	10- 9-5	8	2,015	8	1,480
Texas	Rodgers	5- 9-5	3	6,335	3	6,270
Texas	Wilmont	10- 9-5	6	2,195	6	1,480
Total Texas			23	12,250	23	10,480
Tidal	Watkins	9- 9-5	6	1,985	6	2,170
Twin State	Barker	12- 9-5	4	250	4	135
Twin State	Hearn	2- 9-5	3	9,420	3	10,695
Total Twin State			7	9,670	7	10,830
TOTAL EARLSBORO			285	145,788	285	150,436
TOTAL LITTLE RIVER			85	39,604	81	38,894
TOTAL SEARIGHT			69	22,415	69	23,041
TOTAL BOWLEGS			287	112,709	287	113,694
TOTAL SEMINOLE			319	55,124	319	52,539
GRAND TOTAL SEMINOLE DISTRICT			1,045	375,639	1,041	378,604
Average per well				359		364

Completions in Oklahoma and Kansas, Week Ended December 17, 1927

OKLAHOMA

Carter County

Company	Well No.	Location	Depth	Init. Prod.
Humble	2	NWc SE NW 29-1-3 W	2810-3155	120
Magnolia	2	SEc SW NE 19-1-3 W	T.D. 2800	Dry
Magnolia	1	NEc SE NE 30-1-3 W	T.D. 3880	Dry
Shermerhorn et al.	4	SEc SW 2-2-3 W	T.D. 4002	Dry

Creek County

Company	Well No.	Location	Depth	Init. Prod.
Madden et al	1	SWc NW SE 31-18-10 E	T.D. 3060	Dry
Purser	1	NEc SE NW SE 23-18-11 E	T.D. 1950	Dry
Jackson et al	2	SEc SW NW 13-17-10 E	T.D. 2550	Dry
Irelan et al	1	SWc SE NW 13-17-10 E	T.D. 2540	Dry
Skelly	1	SWc SE SW 10-15-8 E	3176-3182	7M
Kennedy et al	2	SEc SW SW 24-18-11 E	1798-1832	25
Kennedy et al	3	CSL NW NW 25-18-11 E	1930-1962	25
The Texas	2	C SW SE 7-14-9 E	981-993	3M
Independent	7	SEc NW NE 18-14-10 E	493-495	¼M
Independent	3	SEc NW NE 18-14-10 E	3430-3441	225

Garvin County

Company	Well No.	Location	Depth	Init. Prod.
Magnolia	1	SEc NE SW 31-1-3 W	T.D. 3268	Dry

Grady County

Company	Well No.	Location	Depth	Init. Prod.
Magnolia	1	SEc NE NE 34-3-5 W	T.D. 3801	Dry
Carter	4	SWc NW NW 26-5-8 W	T.D. 2450	28M
Watchorn	5	SEc 11-4-8 W	T.D. 2213	28M
Marland et al	3	NEc SE NE 17-3-5 W	2268-2291 OWD	135

Grant County

Company	Well No.	Location	Depth	Init. Prod.
Lathrop et al	1	SEc NE 35-28-3 W	4060-4100	7½M
Marland et al	1	NEc SE 35-28-3 W	4060-4100	8½M

Jefferson County

Company	Well No.	Location	Depth	Init. Prod.
Amerada et al	1	NEc SE NW 23-6-6 W	T.D. 2501	Dry

Kay County

Company	Well No.	Location	Depth	Init. Prod.
Harris et al	5	CEL W½ NW 22-29-1 W	1643-1647	6M
Marland	1	NEc SE 17-29-1 E	750-787	1.24M
Otstot et al	1	NWc NE SE 36-28-1 W	650-675	3M
Morgan	1	NWc SW 29-28-1 E	802-1067	.47M

Muskogee County

Company	Well No.	Location	Depth	Init. Prod.
D. L. T.	1	NWc NE SW SW 9-15-18 E	782-804	4M
Becker-Shaffer	1	SWc SE NE 5-14-19 E	T.D. 750	Dry

Okfuskee County

Company	Well No.	Location	Depth	Init. Prod.
Prairie	1	SEc SW SE 17-10-9 E	T.D. 3338	Dry

Okmulgee County

Company	Well No.	Location	Depth	Init. Prod.
Kessler et al	4	SWc NW NW 9-12-12 E	T.D. 3264	Dry
Independent et al.	5	SEc NW SE 7-12-12 E	1980-1990	1½M
Pine	3	C SE NW 10-15-14 E	960-993	5
Wallace	4	NEc SW SE 14-14-14 E	1686-1726	10

Osage County

Company	Well No.	Location	Depth	Init. Prod.
Osage	382	SWc SE NE 6-27-11 E	1845-1875	1½M
Peters	3	CNL SE 22-27-11 E	1875-1920	1¼M
Parker	4	SWc NW NW 11-26-6 E	2815-2855	811
I. T. I. O.	385	NEc NW 29-24-8 E	1338-1355	5M
Pueblo	4	CWL SW SE 14-21-8 E	2290-2305	25
McConnell	1	SEc SW 6-21-9 E	1220-1265	12
Osage	383	NWc SW NW SE 35-28-11 E	T.D. 1963	Dry
Phillips	2	SEc 17-27-6 E	T.D. 3032	Dry
Phillips	5	NEc SE SE 17-27-6 E	T.D. 1472	Dry
I. T. I. O.	376	NWc SE NE 21-27-11 E	T.D. 1935	Dry

Pawnee County

Company	Well No.	Location	Depth	Init. Prod.
Dixie	1	NEc SW SE 8-21-6 E	T.D. 3212	Dry
Privett	2	SWc NE SE 3-20-6 E	3030-3060	10M

Pontotoc County

Company	Well No.	Location	Depth	Init. Prod.
American	4	NWc NE NW 34-5-6 E	1859-1890	6M
Louisiana	5	SEc NW SE 17-5-8 E	2423-2507	200
Ramsey	2	NWc SE 17-5-8 E	2361-2412	50
Milner	3	SWc NW SW 17-5-8 E	2311-2368	19M
Ramsey	1	NWc SW SW 20-5-8 E	2544-2568	270

Pottawatomie County

Company	Well No.	Location	Depth	Init. Prod.
Darby	1	NWc NE NE 22-7-4 E	3895-3920	35M
Pure	5	SEc NW NW 30-7-4 E	3795-3886	78

Seminole County

Company	Well No.	Location	Depth	Init. Prod.
Twin State	3	NEc SE 2-9-5 E	4351-4361	3630
Texas	8	SEc SW NW 10-9-5 E	4278-4289	150
Gypsy	11	NEc NW NW 11-9-5 E	4467-4488	2595
Magnolia	8	NEc SW SW 12-9-5 E	4294-4301	400
Magnolia	4	NEc NW NW 12-9-5 E	4242-4270	125
Mid-Kansas	2	NWc NE NE 14-9-5 E	4321-4328	130
Mid-Kansas	4	NEc SE NE 14-9-5 E	4309-4311	45
Carter	1	NWc SE NE 3-9-6 E	4266-4280	1350
Texas	1	NEc NW SW 4-9-6 E	4105-4135	100
Magnolia	2	SWc NW SE 12-8-6 E	4219-4237	1050
Carter	3	NWc SW NW 14-8-6 E	4020-4110	55
Minnehoma	4	SWc SW 15-8-6 E	4465-4498	90
Gypsy	2	SEc NE NE 15-8-6 E	4505-4508	372
Carter	10	NEc SE SE NE 31-8-8 E	3830-4005	385
Gypsy	1	NWc NE NE 1-7-6 E	4277-4356	85
I. T. I. O.	5	SWc NE NE 2-7-6 E	4100-4116	188
Prairie	1	NWc NE NE 18-9-7 E	4028-4065	112
Prairie	1	NWc NW SE 2-7-6 E	4316-4324	350
Tidal	8	SWc NE NW 26-9-6 E	T.D. 4250	Dry
Empire	3	SWc 14-8-6 E	T.D. 4537	Dry
Independent et al.	4	SEc SE NE 21-8-6 E	T.D. 4453	Dry
Phillips et al	1	NEc NW 2-7-6 E	T.D. 4428	Dry

Stephens County

Company	Well No.	Location	Depth	Init. Prod.
Magnolia	1	NWc SW NW 2-1-5 W	T.D. 4380	Dry
Magnolia	1	SWc NW SW 18-1-4 W	T.D. 3823	Dry
Lone Star	8	CEL NW SW 9-3-5 W	1280-1283 OWD	13M

Wagoner County

Company	Well No.	Location	Depth	Init. Prod.
Cane et al	1	SEc NW SW 36-17-17 E	805-844	3M
Chapman	1	NWc SW SE 21-18-17 E	T.D. 922	Dry

KANSAS

Butler County

Company	Well No.	Location	Depth	Init. Prod.
Mathews et al	1	SEc NE SE 6-27-6 E	3108-3114	40
Luett et al	1	SWc NE 30-28-7 E	T.D. 2839	Dry

Chase County

Company	Well No.	Location	Depth	Init. Prod.
Kewanee	2	C NW NW 36-18-6 E	1162-1192	1M

Cowley County

Company	Well No.	Location	Depth	Init. Prod.
Bri et al	1	NWc SW 20-31-4 E	T.D. 3352	Dry

Elk County

Company	Well No.	Location	Depth	Init. Prod.
Elmwood et al	1	SEc 6-30-12 E	T.D. 1860	Dry
Union	1	C SW NE 11-31-10 E	T.D. 1469	Dry
Roth-Faurot	1	NWc SW 3-31-11 E	T.D. 2338	Dry
Jacqueline	1	NWc SE 34-29-12 E	826-842	10
Phoenix	1	NEc 22-30-10 E	1988-2014	20
Griffeth et al	1	NWc 35-31-10 E	2293-2295	5

Greenwood County

Company	Well No.	Location	Depth	Init. Prod.
Darby	5	SWc 24-22-12 E	1610-1656	250
Darby	2	NEc SW NW NW 30-22-13 E	1690-1737	280
Darby	3	NWc SE NW NW 30-22-13 E	1687-1737	300
Fetherline et al	1	NEc NW NW 30-22-13 E	1665-1722	10
Murphy et al	5	NEc NW NW 14-23-9-E	2292-2332	125
Valley-Osage	1	SWc SE 10-25-13 E	1420-1448	100
Foster	1	NEc NW 7-27-12 E	T.D. 2135 OWD	Dry

Sumner County

Company	Well No.	Location	Depth	Init. Prod.
Roxana	5	NWc NE 25-31-2 E	1850-1904	300
Roxana	3	NEc SE NE 36-31-2 E	1846-1893	500

of 6,040 barrels for the 24 hours ended the morning of Dec. 15. The well was about a week old at that time and had come in for initial production of 73 barrels per hour. It was not shot but, like a number of wells in the Earlsboro field, boosted itself each day.

Aside from the Seminole district the next interesting area in the Mid-Continent is Logan county. Roxana Petroleum Corp. is due for another completion in the area northwest of Lovell. Its No. 1 Stephens, in the SW of 29-19-4W, at the end of the week was drilling in lime at 5948 feet with 1500 feet of oil in the hole. It will soon reach the Wilcox which was found in the first Roxana well, in 30-19-4W. The latter well has total depth of 5985 feet and is about a quarter of a mile from the Stephens well.

One other wildcat play that attracted attention early in the year is in Cimarron county, Okla., the extreme western county of the state. Since Ramsey Brothers got a small well there, little news has developed.

Completions in N.E. Central, West, Panhandle and North Texas, Week Ended December 17, 1927

NORTH AND EAST CENTRAL TEXAS

Company	Well Farm	Location Survey	Depth	Init. Prod.
Anderson County				
Humble	1-Jones	Roberts	T.D. 3243	Dry
Brown County				
McMurrey et al	16-Newton	Swain	1312-1322	8
Shafner	6-Hinson	Hogan	1254-1267	12
Selby	22-Ellis	SA&MG	1352-1340	500
Wheelock et al	4-Smith	SA&MG	1333-1351	75
Wheelock et al	5-Smith	SA&MG	1330-1348	550
Lamb	1-Gawthney	Harris	1491-1513	75
Gulf	1-Hall	Hunt	T.D. 2182	Dry
Coleman County				
Magnolia	1-Henderson	ET	717-729	.70M
Jack County				
Marland	1-Holmes	Robinson	T.D. 2540	Dry
Jones County				
Stebbins	1-Scott		T.D. 2510	Dry
Phillips	2-Mason	T&P	2525-2527	100
Limestone County				
Reiter et al	1-Van De Long	Varella	T.D. 3105	Dry
McCullough County				
Wakefield et al	2-Hutton	Frollist	T.D. 815	Dry
Shackleford County				
Perry	1-Akers	T&P	T.D. 2252	Dry
Merry Bros. et al	1-Husky	TS	T.D. 438	3
Young County				
Pitzer et al	4-Morrison	TS	2224-2229	250
Pitzer et al	5-Morrison	Hammond	2212-2222	250
Jacobs	1-Weldon	Lythe	T.D. 4548	Dry

NORTH TEXAS

Company	Well Farm	Location Survey	Depth	Init. Prod.
Archer County				
Burns et al	2-Burns	Harris	1504-1507	8
Wilson	2-Farmer	N Q R	1513-1515	57
Roberts	3-Garvey	TE&L	764-771	40
Atlantic et al	2-Perkins	DCSL	T.D. 1845	Dry
Darr et al	2-Edwards	MCSL	T.D. 1437	Dry
Texas-Burns	1-Turbeville	Clark	T.D. 1575	Dry
Burton et al	1-Farmer	Poitevant	T.D. 1518	Dry
Burns	1-Richardson	McCune	T.D. 1301	Dry
Johnson	2-Ward	TE&L	T.D. 1107	Dry
Cooke County				
Simms	1-Bowers	Toby	T.D. 1801	Dry
Lesh et al	1-English	Faris	T.D. 2250	Dry
Sun	7-Hacker	Scott	1666-1682	20
Hamilton et al	2-Bindle	MT	1375-1395	28
Foard County				
Roxana et al	1-Mathews	GC&SF	T.D. 2550	Dry
Montague County				
Continental	1-Salmon	Robertson	T.D. 1626	Dry
Cumley et al	1-Tinney Bros.	Witcher	T.D. 300	Dry
Continental	3-Hinton	Coates	766-802	21
Wichita County				
Hobbs	1-Hodge	H&TB	1523-1525	15
O'Neale	1-Carl	RRV	T.D. 1920	Dry
Texas	340-Bywaters	GC&SF	T.D. 2250	Dry
McDonalds et al	1-Allingham	H&TC	T.D. 2177	Dry
Consolidated	1-Waggoner	H&TC	T.D. 2235	Dry
Wolfe et al	1-Boyd	Lewis	T.D. 1808	Dry
Wilbarger County				
Weir	2-Zipperale	H&TC	T.D. 1473	Dry
Murchison	1-Waggoner	SP	T.D. 618	Dry
Muse et al	1-Womack		T.D. 2109	Dry
Fain et al	1-Waggoner	H&TC	2085-2391	80
Young County				
Atlantic et al	3-Keen	TE&L	826-836	6
Atlantic et al	4-Keen	TE&L	T.D. 900	Dry
Parker et al	1-Oliver	TE&L	T.D. 640	Dry

PANHANDLE

Company	Well Farm	Location Survey	Depth	Init. Prod.
Gray County				
Camel	1-Harrah	I&GN	3122-3265	450
Danciger et al	2-Jackson	H&GN	2960-2986	2400
Amagray	1-Chapman	H&GN	2597-2602	211
Bensaul	1-	H&GN	2407-2780	62
Hutchinson County				
Roxana	1-Jasper	TC	2800-2885	8M
McElroy et al	1-Cockrell	D&SE	2876-3026	1240
First National et al	1-Cockrell	D&SE	2930-2930	1320

WEST TEXAS

Company	Well Farm	Location Survey	Depth	Init. Prod.
Crane County				
Independent	5-Univ.	Univ.	2805-2898	400
Humble	13-Univ.	Univ.	2890-2960	760
Pecos County				
Gulf Prod.	2-Yates	Runnels	1255-1350	449
Roxana	3-Trippett	TC	1525-1703	179
Simms	3-Smith	TC	1187-1197	10,000
Mid-Kans.-Transc.	3-Smith	TC	1305-1423	322
Mid-Kans.-Transc.	4-Smith	TC	1195-1400	500
Allsman et al	4-State	Pecos River Bed	840-1040	425
Douglas	1-Sallman	GC&SF	T.D. 1519	Dry
Upton County				
Tulsa	1-Estep	MK&T	T.D. 2435	Dry
Champlin	3-Lane	GC&SF	2017-2040	390
Winkler County				
Southern Crude	67-Hendricks	PSL	2735-3028	415&3M

The original well, in the center of the NW NE of 27-5N-5E, got the top of a pay at 4095 feet and showed for about 35 barrels daily. It was shot with 30 quarts from 4090 to 4140 feet without improving it. This was several months ago. Drilling went on to total depth of 4681 feet. Now the 5-inch is being pulled and the well will be plugged back to the showing.

Seal Beach Wells To be Deepened

Staff Special

LOS ANGELES, Dec. 17.—One well in the old Seal Beach area that had been producing from the Bixby sand is now being deepened by the Associated Oil Co. to the Selover sand. This indicates that the agreement is off, which has been in effect for a number of weeks between the Associated, Standard and Marland not to deepen old wells in the old area.

Several crews are busy at some of the old Standard and Marland wells. The old area of Seal Beach is held entirely by the three companies mentioned and the wells are well spaced. There are three known sands in this general area and very little production has ever come from the deepest sand. The gas lift is extensively used in this field and Marland has been repressuring the upper sands with good results.

Rotary Drill Goes Down 2,290 Feet in 40 Hours

PITTSBURGH, Dec. 17.—What he believes to be the world's record in rotary drilling was seen by F. J. Huffman, vice-president and treasurer of Penn Mex Fuel Co. on a recent tour of the company's Mexican property. Forty hours was spent in drilling 2,290 feet.

The well was the company's Alamo No. 29, equipped with 117 foot standard wood derrick. George S. Fertner was foreman; and H. A. Boutwell and W. S. Gattrell were the drillers. The hole was drilled for 8¼-inch casing. Mr. Huffman writes about the well as follows:

"Mr. Boutwell spudded in at 2:30 Friday afternoon Nov. 25, and for about three hours fought the surface gravel until he had actually worn out two fish tail bits in the first 96 feet. He then put on a new bit, and when he left his tour at midnight he had 246 feet. Mr. Gattrell then came on tour, and after considerable delay in discussing with Mr. Fertner the advisability of putting in surface casing to overcome the caving of gravel he went to work without putting the casing in and at noon on Saturday he had drilled 1,011 feet.

"Mr. Boutwell then came on and during his tour to midnight drilled 920 feet. At daylight the next morning, Sunday Nov. 27, 40 hours after spudding in, the well was 2,290 feet, which was all the depth we had been given in our original government permit."

Ideal rotary and draw works, two Oil Well Supply giant mud hog pumps, Oil Well Supply rotary swivel and string of four inch rotary pipe was the equipment.

Forecast Entry of Prairie Into California

LOS ANGELES, Calif., Dec. 18.—Entry of the Prairie Oil and Gas Co. into California is forecast with the announcement by Dana H. Kelsey, vice president of the retention of C. R. McCollom of Los Angeles and W. H. Taylor of Cheyenne, Wyoming, to investigate the California oil situation.

The official statement as released by Mr. Kelsey follows:

"Dana H. Kelsey, vice president of the Prairie Oil and Gas Co. of Independence, Kansas, announces the completion of a contract between his company and C. R. McCollom of Los

New Field Operations in Oklahoma, Kansas, Panhandle and West Texas

OKLAHOMA

Beckham County

Company	Well No. Farm	Location	Remarks
Magnolia	1-Bagget	NEc NW NW 29-9-23 W	Loc.

Carter County

Magnolia	3-Spears	SWc NW 29-1-3 W	Bldg. rig
Magnolia	2-Carter	SWc SE SW 14-1-3 W	Rig
Boring et al	1-Walker	SWc SE NW 10-4-2 W	Bldg. rig

Cimarron County

Ramsey	1-State Land	C SW SW 21-5-5 E	Loc.

Creek County

Independent	7-Wolfe	SEc NW NE 18-14-10 E	Loc.
Mid-Cont	2-Harjo	NWc NE NE 18-14-10 E	Loc.
Future Dev	2-Newton	SWc NW SW NE 2-16-11 E	Spudding
Wilson	1-Secrest	SWc SE 26-16-10 E	Spudding
Smith et al	3-Fife	NEc SW NW SW 3-17-11 E	Rig on ground
Turman	4-Pemberton	C NW NW 8-17-10	Rig on ground
Roland	1-Scott	NWc SW SE 10-15-8 E	Rig
Wilson	1	SWc SE 3-15-8 E	Loc.
Bu-Vi-Bar	1-Cain	SWc NE NE SE 18-17-7 E	Loc.
Devonian	6-Miller	C SE NE 14-19-8 E	Rigging up OWD
Wood-Wood	1-McIntosh	SWc SE SW 34-19-8 E	Loc.

Garvin County

Magnolia	1-King	SWc SE NE SW 31-1-3 W	Rig

Grady County

Carter	2-Nothaf	NWc SW NW 23-3-5 W	Rig. rotary
Commercial	1-Woolridge	SEc SW NW 13-4-8 W	Rig
Watchorn	1-Dennett	SEc SW SW 12-4-8 W	Rig
Okla. Utilities	5-Dryden	SEc SW SW 35-5-8 W	Timbers
Carter	3-McCaughtry	NWc SW NW 26-5-8 W	Rigging
Okla. Utilities	3-Farwell	SEc SW SE 23-5-8 W	Drilling

Kay County

Harris et al	2-La Mar	NEc NW SW 22-29-1 W	Loc.
Marland	3-White	C SW NW 17-29-1 E	Loc.
Tidal	1-Cole	CSL N½ NE SE 18-29-1 E	Loc.
Otstot et al	2-School Ld.	NWc SE SW 36-28-1 W	Loc.
Markham Jr.	1-McGaha	SEc NE 34-26-2 W	Loc.
Morgan	1-Curry	SEc SE SE SW 19-28-1 E	Loc.

Logan County

Ramsey Bros.	1-Lovell	SWc SE NE 16-18-4 W	Loc.

Muskogee County

Linthecum	2-Kelly	CSL SW NE SE 5-14-19 E	Loc.
Dixon et al	5-Callahan	C SE 2-14-18 E	Loc.
Price	1-Russell	NEc SE SE SE 19-15-16 E	Loc.

Osage County

Beacon	1-Fitzstephens	SWc NE 3-28-8 E	Loc.
Phillips	1-	SWc NE 11-26-6 E	Loc.
Parker	5-	SEc NW 11-26-6 E	Loc.
McCuen et al	1-	SWc NW 15-24-8 E	Loc.
Oliphant et al	1-	SEc NE NW NW 7-24-9 E	Loc.
Winona	1-	C SL NE 19-22-12 E	Loc.

Okmulgee County

Wallace	5-Colbert	C NW SE 14-14-14-E	Loc.
Misener	2-Colbert	C EL NE SW 14-14-14-E	Loc.
Lavery et al	1-Carter	NWc SE SE 10-15-14 E	Loc.

Pawnee County

Wallace et al	1-Green	NWc SW 29-20-9 E	Loc.
Turnet et al	2-Weeks	NEc SE 30-20-9 E	Loc.

Payne County

Willis	1-Smith	NWc SE 10-18-5 E	Loc.
Pure	1-Varley	NEc SW SE 7-18-4 E	Loc.
Pure	2-Ramsey	SWc NE SE 7-18-4 E	Loc.
Payne County	2-Knott	NWc SE SE 7-18-4 E	Loc.

Pottawatomie County

Gypsy	1-Sullivan	NWc NE SE 25-7-3 E	Loc.
Magnolia	1-Green	SWc NW 13-7-4 E	Loc.
Magnolia	3-Risenhoover	SEc SW NE 14-7-4 E	Loc.
Magnolia	2-Davis	NEc NE 15-7-4 E	Loc.
Magnolia	2-Singletary	NEc SE NW 23-7-4 E	Loc.

Pittsburgh County

Spelter	1-Houston	NEc NE 17-7-18 E	Loc.

Pontotoc County

Coleman	1-Martin	NEc SW SE 25-5-6 E	Loc.
Homa Okla	1-Berry	SEc NE SE 19-5-8 E	Loc.

Rogers County

Kays	1-Childers	SEc 26-19-17 E	Loc.

Seminole County

Tidal	1-Fixie	NEc NW SW 9-8-6 E	Loc.
Tidal	8-Harjoche	NWc SW 10-8-6 E	Loc.
Slick	1-Barrett	NEc SE NW 13-5-6 E	Loc.
Mid-Continent	1-Fleet	SEc 7-5-8 E	Loc.

Stephens County

Magnolia	4-Webb	SWc NW SW SE 3-2-5 W	Loc.
Arington et al	1-Brown	NEc SW NW 19-2-7 W	Loc.
Pace et al	1-Adams	SWc NE 12-2-8 W	Loc.
Four-In-One	1-Hanson	NWc 35-1-8 W	Loc.
Hanbury	6-Taliaferre	NWc SE NW SW 27-1-8 W	Loc.
Smith-Law	6-Brymer	SWc SW NE NE 31-1-8 W	Loc.
Magnolia	1-Funk	NWc SW NE NW 30-1-8 W	Loc.
Lone Star	8-Wilson	C EL NW SW 9-3-5 W	Loc.
Smith-Law	2-Brymer	NW NW SE NE 31-1-8 W	Loc.
Skelly	4-Krebbs	NWc SW SE 13-1-4 W	Loc.

Tulsa County

Company	Well No. Farm	Location	Remarks
Franchot	8-Bruner	NEc SW NE SW 22-17-13 E	Loc.

Wagoner County

Wilson et al	2-Butler	C SE SE 33-16-17 E	Loc.
Johnson	4-Lunnon	C SE NW NW 14-16-16 E	Loc.
Chapman	2-Hosmer	NEc NW SW SE 21-18-17 E	Loc.

KANSAS

Butler County

Davis et al	3-Lewis	NWc SW SW 3-27-6 E	Loc.
Rosenthal et al	8-Shaffer	NEc SE SE 4-27-6 E	Loc.
Richmond	1-Getter	NEc SW 17-27-6 E	Loc.
Blakely et al	1-Henry	NWc SW 21-27-6 E	OWD Loc.

Coffey County

Bruce et al	1-Reed	NWc SW SW 23-22-13 E	Loc.

Cowley County

Kentucky N&O	1-Dobson	SEc NE 24-33-6 E	Loc.

Elk County

Jacqueline	2-Hawkins	NEc NW SE 34-29-12 E	Loc.
Theta	3-Marshall	SWc SE SE 27-31-10 E	Loc.

Greenwood County

Theta	3-Frankhouser	SEc SW SE 23-22-12 E	Loc.
Empire	5-Schwab	NEc SE NE 25-22-13 E	Loc.
Rhodes et al	1-Wassom	NEc 27-22-12 E	Loc.
Darby	4-Schwab	NWc SW NW 30-22-12 E	Loc.
Murphy et al	6-Green	NWc NE NW 14-23-9 E	Loc.
Lassen et al	3-Wilkerson	SEc SW 6-25-9 E	Loc.
Empire	1-Webber	SEc NW SW 10-25-13 E	Loc.
Foster	1-Taylor	NEc NW 7-27-12 E	OWD Loc.

Osborn County

Liggett et al	2-Worley	NEc SE NW 34-10-15 W	Loc.

Rush County

Wilcox	4-Munsell	SWc 17-12-15 W	Loc.

Sumner County

Roxana	4-Emerich	NWc SW SE 14-32-2 E	Loc.
Wasson et al	2-Gassoway	SEc SW 14-32-2 E	Loc.

TEXAS

Glasscock County

Weekly	1-Roberts	Sec. 156 B1, 29 W&NW	Loc.

Howard County

Coil-Concord	3-Roberts	Sec. 156-Blk 29 W&NW	Loc.
Magnolia	9-Kelly	Sec. 124 Blk. 29 W&NW	Loc.
Lockhart et al	1-Roberts	Sec. 156 Blk 29 N&NW	Loc.

Mitchell County

California	4-Foster	Sec. 6 Blk 29 T P	Loc.

Pecos County

Marland	9-Yates	Sec. 60 Blk 1 I&GN	Loc.
Mid-Kans et al	15-Yates	Blk. 1, I&GN	Loc.
Mid-Kans et al	9-Taylor	Sec. 33, Blk 194 TC	Loc.
Mid-Kans et al	8-Taylor	Sec. 33 Blk. 194 T.C.	Loc.
Mid-Kans et al	8-Taylor	Sec. 33 Blk 194 T.C.	Loc.
Gulf Prod.	4-Smith	Sec. 28 Blk. 194 T.C.	Loc.
Gulf Prod.	3-Smith	Sec. 28 Blk. 194 T.C.	Loc.
Cal. Co.	9-Yates	Sec. 34 Blk. 194 T.C.	Loc.
Roxana	5-Smith	Sec. 27 Blk. 194 T.C.	Loc.
Marland et al	14-Yates	Sec. 34½ T.C.	Loc.
Humble	5-Smith	Sec. 28 Blk. 194 T.C.	Loc.
Gulf Prod.	5-Smith	Sec. 28 Blk. 194 T.C.	Loc.
Roxana	6-Tippett	Sec. 102 Blk. 194 T.C.	Loc.
Roxana	5-Tippett	Sec. 102 Blk. T.C.	Loc.
Gulf	5-Yates	Runnells County Survey	Loc.
McMan	1-Richards	Sec. 108 CT&MC	Loc.
Douglas et al	2-Sellman	Sec. 14 Blk. 2 TC	Loc.
Marland-McMan. (Indep.)	13-Yates	Sec. 34½ T.C.	Loc.
Mid-Kans et al	22-Yates	Sec. 61 Blk. 1 I&GN	Loc.
Mid-Kans et al	21-Yates	Sec. 61 Blk. 1 I&GN	Loc.
Mid-Kans et al	19-Yates	Sec. 21 Blk. 1 I&GN	Loc.
Mid-Kans et al	18-Yates	Sec. 61 Blk. 1 I&GN	Loc.
Marland	10-Yates	Sec. 60 Blk. 1 I&GN	Loc.
Humble	1-State	Sec. 15 Blk. 34 State Lands	Loc.

Tom Green County

Collins et al	1-Clark	CSL 646 Schaffer	Loc.

Upton County

Tex-Pac	11-Lane	Sec. 5 MK&T	Loc.

Winkler County

Atlantic et al	1-Hendricks	NWc NE NW Sec. 40 Blk. 25 School	Loc.
Atlantic	3-Hendricks	SWc SE SW SEc 34 Blk. B-5 School	Loc.
Independent	3-Hendricks	SEc NW SW Sec. 34-Blk. B-5	Loc.
Independent	4-Hendricks	NEc SW SW Sec. 34 Blk. B-5	Loc.
Independent	5-Hendricks	Sec SW SW Sec. 34-B-5	Loc.
Independent	6-Hendricks	SWc Sec. 34-B-5	Loc.
Independent	7-Hendricks	NWc SW SW Sec. 34-Blk. B-5	Loc.
Independent	8-Hendricks	SWc NW SW Sec. 34-Blk. B-5	Loc.
Magnolia	4-Hendricks	SWc NW NE Sec. 29-B-5	Loc.
Magnolia	5-Hendricks	SWc NE Sec. 29 B-5	Loc.
Magnolia	6-Hendricks	NEc NW NE Sec. 29 B-5	Loc.
Roxana	C-2 Hendricks	SEc NE NW 29-B-5	Loc.
Southern Crude	C-5 Hendricks	SEc NE NE Sec. 33-B-5	Loc.
So. Crude	F-2 Hendricks	Sec NE SE Sec 33 Blk. B-5	Loc.

Angeles, and W. H. Taylor of Cheyenne, Wyoming, in which the two above named are retained by the Prairie Co. to investigate the California oil situation.

"Mr. Taylor is an attorney who has been associated with the Prairie Oil and Gas Co. in their Rocky mountain operations for the past 10 years. Mr. McCollom is a petroleum geologist who has been with the Union Oil Co. of California, as chief geologist, for the past seven years, having resigned from that position effective Jan. 1, to make this connection.

"Their offices will be opened Jan. 1 at 452-453 Roosevelt building, Los Angeles."

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Yates Field Outlet 48,000 Bbls. After First of Year

HOUSTON, Dec. 16

YATES field operators, beginning Jan. 1, will prorate their market outlet on an acreage basis instead of using potential production as a yardstick. In the meantime, their crude runs are being made on the basis established by the Dec. 1 official gauge of potential production.

Dec. 1 potential production was 604,974 barrels, based on 1-hour gauges of wells and leases and outlet was provided for 42,000 barrels daily by common carrier pipelines serving the territory.

Although nearly a dozen new wells were completed in the first half of December, some of them for enormous potential production ratings, the Pecos County Prorating Committee decided to allow the official gauge taken at the beginning of the month to stand until the new acreage basis of computing runs takes effect.

When the change is made Jan. 1, the market outlet will be on a basis of 48,000 barrels daily, divided among operating companies as shown in the accompanying table, assuming that no changes are made in the meantime.

Company	Allowable Runs pct.	Daily Runs (Bbls.)	Dec. Daily Runs
Mid-Kansas	30%	14,400	18,689
California	19.30	9,264	8,591
Gulf	15.40	7,392	618
McMan-Marland	8.00	3,840	5,263
Roxana	9.60	4,608	1,095
Simms	6.00	2,880	5,263
Humble	7.20	3,456	1,506
Marland	2.00	960	1,433
Red Bank	1.00	480	218
Savoy-Mazda	.50	240	123
Kirby-Edson	.50	240	123
Allsman-Bell	.50	240	249
Totals	100.00	48,000	42,000

Operators whose proved acreage falls short of one half of one per cent of the total area of 15,113.8 acres owned by producing companies, as figured by the prorating committee, are arbitrarily allowed minimum runs of one half of one per cent of the whole. This is a protection against loss of investment on small properties.

The proratng committee also figured the proved area of the Yates structure includes 1,663.31 acres owned by companies not now producing in the field, bringing the whole of the productive territory up to 16,777.11 acres.

Allowable runs figures set out in the new Pecos county agreement and the total productive proved areas shown for Dec. 1, last, form the basis for prorating of market outlet from the Yates field for the first half of 1928.

Should operators inaugurate storage programs, or programs for disposition of crude otherwise than by common carrier pipeline, then it is agreed these figures shall be modified as companies in the agreement having leases in the proved area, nonproductive as of Dec. 1 secure production and as proved acreage owned by operators having production as of that date increases or decreases.

The agreement sets forth that "as parties hereto having leases in the proven area, but without production thereon, secure production, they shall be entitled to an allowable runs percentage equal to the ratio of their proven acreage to 15,113.8 acres plus the proven acreage of such operator, subject to adjustment on account of storage nominations or disposition otherwise than by common carrier pipeline; that is to say, for example: if X, who has no production as of Dec. 1, 1927, secures production on a proven area of 600 acres, he shall be entitled to an allowable runs percentage of 600 ÷ 15,113.8 plus 600 subject to recalculation of his percentage after deducting from the amount he would be entitled to run on the above calculation his nominations for storage or disposition otherwise than by common carrier pipeline.

"The allowable runs percentages of all other operators shall, thereupon, be reduced rateably. In like manner, as the proven area belonging to a party hereto having production on Dec. 1, 1927, is increased or decreased, and the amount of such increase or decrease shall be contributed or received rateably by the other parties hereto having production at the time, for example: if the proven area of A's leases should be increased 600 acres it would be entitled to increase its allowable pipelines runs percentage by 600 ÷ 15,113.8 plus 600 and the allowable runs percentage of all other parties would be decreased accordingly.

"As any party hereto nominates a storage program or program for disposition otherwise than by common carrier pipeline for any given proration period, the amount such party would be entitled to run to pipeline during such proration period shall be decreased by the amount of such nomination and the percentage of pipeline runs for such party shall be decreased accordingly with rateable increases in the pipeline outlet for all other parties."

Yates field completions since Dec. 1, last, include the following wells not figured in the official gauge used as a yardstick for this month's crude runs:

Mid-Kansas & Transcontinental—Yates 8-C, 300 barrels in one hour at 602 feet; Yates 9-C, 21 barrels in one hour at 698-700 feet; Smith-

Taylor 4,500 barrels in one hour at 1150-1400 feet; Smith-Taylor 5, 115 barrels in one hour in uncompleted stage at 1125-1277 feet; Smith-Taylor 6, 1140 barrels in four hours at 1178-1264 feet, in uncompleted stage.

Gulf—Yates 1, 17 barrels in one hour, first report, at 1363 feet.

Marland—Yates 5-A, 100 barrels in one hour at 987 feet; Yates 6-A, flowing by heads at 988 feet; Yates 7-A, one head of 40 barrels at 1061 feet; Yates 10-A, flowed 310 barrels in three hours while drilling at 994 feet.

McMan-Marland—Yates 11, 1065 barrels in one hour at 1240 feet.

Humble—Smith 4,100 feet oil in hole at 1490-1589 feet; Smith 1-B, 85 barrels hour at 1340-1512 feet.

Roxana—Smith 2,300 barrels daily at 560-565 feet.

Deep Sand Wells Increasing Production at Long Beach

LOS ANGELES, Dec. 17

LATE this week 21 wells were producing at Long Beach from the deeper sand, averaging about 1700 barrels to the well. Daily average production for the field runs between 112,000 and 115,000 barrels, about 78,000 barrels of which comes from the old part of the field. Early in October, daily production of the field was about 90,000 barrels, thus indicating without reference to the new completions in the deep sand, that the decline in production from old wells was 12,000 barrels. Some of this also has been cessation of production from old wells being drilled deeper.

Practically all the older wells set aside for deepening have already been taken off production, so very little further decline in the field can be expected from that source. It has been estimated that 12 more deep wells will be completed and placed on production by Jan. 1. It is safe to say these wells will average 1000 barrels each and vary likely around 1500 barrels each. For this reason daily production at the end of the year in this field should be at least 125,000 barrels and by March around 150,000 barrels.

Several new deep sand wells completed at Long Beach in the past two weeks showed an increase in production after the first few days, rather than settling down to a lower but steady production. Early this week, 65 new wells were drilling for the deeper sand, and 20 old wells were being deepened. There are 75 additional projects, ranging from locations to wells preparing to deepen. Three new wells were completed the first five days of this week, making slightly better than 5000 barrels, total.

The Pan American late this week placed its wildcat at Rincon in Ventura County on the Pacific Ocean front on production for the second time. The first production test resulted in 1150 barrels of 29.5 gravity oil, but the water content was too great. The oil string was pulled out, a plug placed in the bottom, shutting off what was thought to be a barren sand, and the production this week, with bottom at 2715 feet is at the rate of 750 barrels a day with a cut of only 2 per cent.

The well has a tubing pressure of 135 pounds, while the casing pressure is 525 pounds, with a production of 250,000 cubic feet of gas. The oil is flowing through a half-inch bean, and 29.5 A.P.I. gravity. This oil is the same as produced by most of the wells in the Ventura Avenue field.

Total of 13 wells are now drilling in the water front area in the vicinity of the Pan American well, seven below 2000 feet. Several completions can be expected in the next few weeks.

Due to the efforts by the state authorities to prevent drilling of tide water lands, not many new wells will be started the next few weeks. All the best looking land has been leased and most of the locations made.

At Ventura Avenue, the old established field some 8 miles east of Rincon, there are 31 wells drilling. During the past week, Associated Oil Co.'s Hartman 10 was completed at 6663 feet for 1800 barrels of 29.2 gravity oil from nearly 1000 feet of oil sand. It is making about 1,000,000 cubic feet of gas. Shell Co. also completed a smaller well making less than 1000 barrels of oil, offsetting the Petroleum Securities land where small wells have been the rule.

Due to the waste of gas in the Ventura Avenue field, it is doubted if production will show any real increase in the next few months, as the companies interested are expected either to hold back wells near the completion stage, or shut in sufficient oil to avoid as much gas waste as possible.

A meeting will be held in San Francisco early in January, to be attended by the governor's gas conservation committee and leaders of oil companies to discuss some plan to reduce gas waste. It is generally believed that shutting in oil production is about the only way to solve the problem.

Other fields in the state are barely holding their own, with not very much active work going on, but wildcats are rather numerous over the state.

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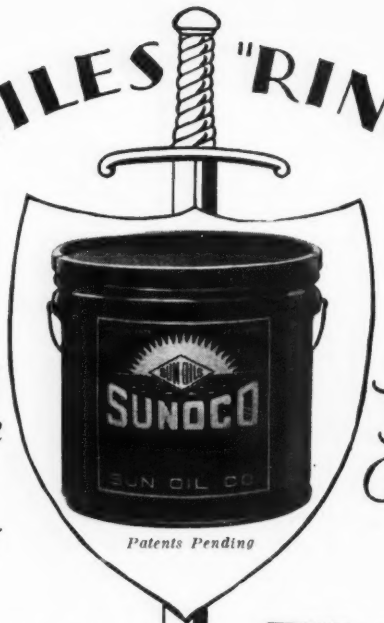

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New Publications

HOW an outside student of business looks upon the oil industry in the light of its present condition and the resulting discussion on conservation is set forth in the series of articles by Isaac Marcosson, Saturday Evening Post writer, the first of which appears in its Dec. 17 issue. His next article is to be on the present method of developing flush oil fields.

The remedy for the present ills of the industry, says Mr. Marcosson, is conservation, which he regards as "no longer a question, but a problem of how to bring it about."

The article brings up the following points in which the oil industry differs from others and which explain its present condition:

The business, because of its nature, is individualistic. Leaders are not agreed as to the solution of its problems.

Its resources cannot be accurately estimated as with other natural resources as they are migratory in nature.

Influence of the royalty owner. In flush pools he is the dictator of the policy the companies must follow, rather than supply and demand for their product.

Too much money and too many people in the business.

Lack of economic foresight, solidarity and statesmanship among its leaders.

The oil industry is a stepchild of other industries, depending on them for its markets and competing with itself in times of over-production, in place of regulating its production.—V.B.G.

Purchasing Agents Dine With Supply Men

TULSA, Dec. 14.—The Purchasing Agents Association of Tulsa gave its annual dinner for representatives of various manufacturing companies, Dec. 13. Among the members and their guests who made impromtu talks was Lee C. Moore, who spoke briefly on his early experiences in the industry, stressing the idea that salesmen should know the practical as well as theoretical uses of the products they had to sell.

The principal topic of many speakers was the unnecessary duplication of effort necessary to sell supplies and equipment. The remedy suggested was the appointing of a man in the oil organizations whose duty it would be to consider submitted goods from a practical standpoint, passing his recommendations on to the purchasing agent, this to eliminate a large number of calls on men in the field.

Short Time Tests of Pressure Stills Do Not Show True Strength

By T. McLean Jasper*

Presented before American Petroleum Institute Meeting at Chicago, Dec. 6-8

IN A DISCUSSION of the question involving safety in design and the strength of metal in service under elevated temperature conditions the matter must of necessity be considered from two different angles. The one deals with the nature of the distribution of stresses in a particular design and considers a constructive change of inadequate safety measures, and the other considers the careful production of facts concerning the strength of the metal at elevated temperatures which is used in the equipment which has been designed.

In other words a poorly designed structure using very strong metal may not be as safe as a well balanced design using a weaker metal, and unless the strength values of the steel under appropriate testing conditions are obtained the factor of safety when assuming a given stress is not what it is supposed to be.

The question of producing the safest structure, therefore, considers the best balanced design coupled with the best metal available for the business in hand when viewed from the soundest engineering standpoint.

In the matter of design is also involved the question of the fabrication methods adopted in joining metal together to produce a finished structure. If the methods of fabrication can be relied upon to produce 100 per cent strength and security without thickening the metal in the neighborhood of the joints, the design becomes much more simple than would otherwise be the case.

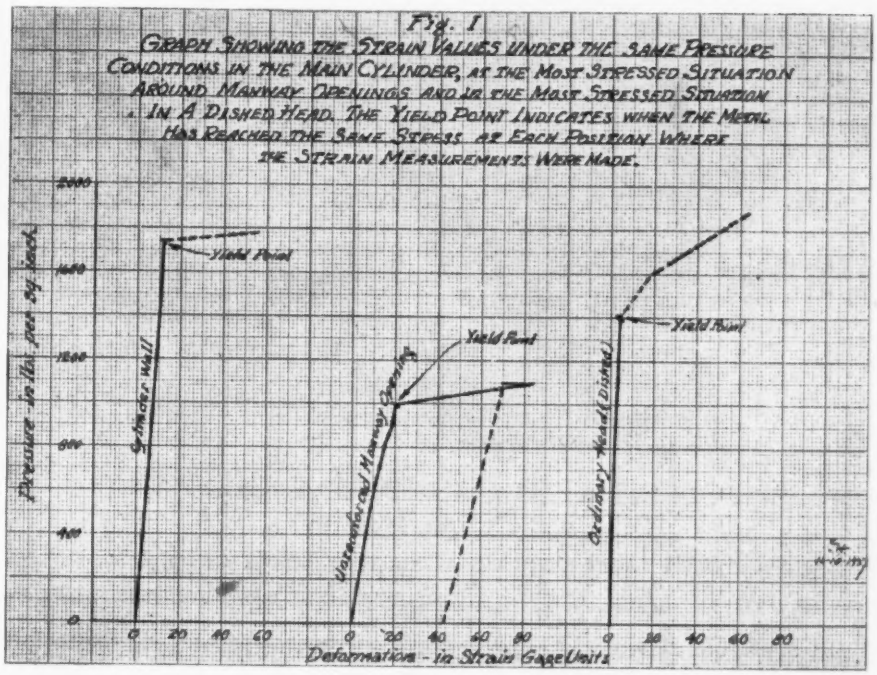
Factors of Safety

THE real factor of safety in a structure is obtained by dividing the actual load that can be carried by it by the actual load imposed upon it for service conditions. This is a very difficult task to perform because if the actual load that a structure can carry is found there is no structure left in most cases to perform the essential function of carrying a future imposed working load.

For this reason the application of factors of safety in pressure containers are made on test results considering the maximum stress conditions in the container coupled with appropriate test results on the metal of which they are composed. In the engineering profession the term "Factor of Safety" has been applied promiscuously. We have factors of safety based on the ultimate strength, factors of safety based on the yield point and several other methods of using this particular term.

Fig. 1

GRAPH SHOWING THE STRAIN VALUES UNDER THE SAME PRESSURE CONDITIONS IN THE MAIN CYLINDER, AT THE MOST STRESSED SITUATION AROUND MANWAY OPENINGS AND IN THE MOST STRESSED SITUATION IN A DISHED HEAD. THE YIELD POINT INDICATES WHEN THE METAL HAS REACHED THE SAME STRESS AT EACH POSITION WHERE THE STRAIN MEASUREMENTS WERE MADE.



The author believes that the factor of safety based on the ultimate or fracture strength of a material or structure under conditions appropriate to the manner in which it is to be used is the most satisfactory method of applying it.

The reasons for this are as follows: The fracture strength of a piece of metal is the easiest experimental value to determine accurately and moreover when using this quantity and dividing by the maximum stress imposed upon a structure the degree of safety is as shown by the ratio obtained.

Factors of safety have often been calculated on pressure containers to be used at elevated temperatures by applying the short time laboratory test for strength of the metal together with the ordinary cylinder formula

$$S = \frac{P D}{2 t}$$

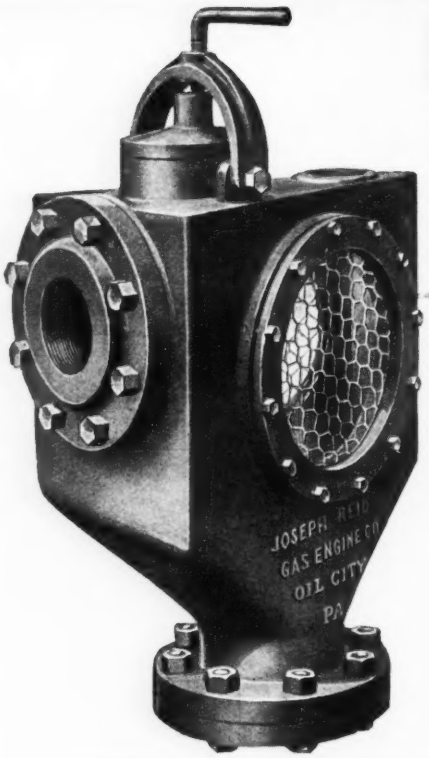
without considering the weakening effect due to lack of reinforcing at openings or the weakening effect due to the shape of the heads or sometimes the weakening effect of the joint if it is not equal in strength to the metal which is joined.

If a pressure container is joined together in such a manner that localized stiffening occurs at the joints then intensified stresses may occur adjacent to the joint and cause the pressure container to be weaker than anticipated. If the joint has an efficiency less than 100 per cent the intensification of stresses adjacent to it may be less than that occurring at the joint.

IF, HOWEVER, a change of shape occurs near the joint, such for instance as in the small radius of a dished head in which the stiffening action of the joint is added to the stress intensification due to the shape of the head, then this condition of stress intensification may cause rupture at a much lower stress than that anticipated.

The above discussion applies in a greater degree when considering thick walled pressure containers than when considering pressure containers of thin walls of 1 inch or less in thickness, because with thin walls deformations can occur at very much lower average

*Director of Research, A. O. Smith Corp., Milwaukee.



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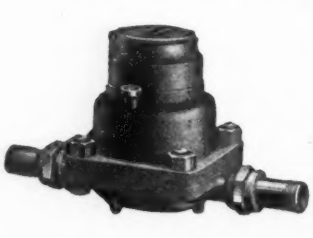

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strain values than would be the case in pressure containers with thick walls.

The question of the application of factors of safety using various materials at elevated temperatures also assumes greater importance as the temperatures are increased.

The factor of safety for a .20-.30 per cent carbon steel using an allowable working stress at 900 degrees Fahr. of 6000 pounds per square inch is only 3 in the cylinder and if the openings are not reinforced and heads are not of a special shape to make openings and heads as strong as the cylinder the factor of safety is considerably decreased. For a .08-.12 per cent carbon steel the factor of safety on the above basis would only be 2½. This paper does not propose to discuss the factor of safety necessary for pressure containers. The value of 3 given above must not be construed to mean that the author advocates this without considering all of the questions of stress intensification involved. The following paragraph, therefore, must be considered in this light.

If by lack of reinforcing of openings, shape of heads, method of joining or kind of material the factor of safety is materially decreased below 3 at any point, the margin, when considering thick walls in vessels, becomes inadequate to care for the momentary increases of pressure inherent to the cracking process and to protect against corrosion which occurs in pressure containers. An explanation of the above statement is given in the following paragraph.

It is the general impression among designing engineers that the strength of steel at elevated temperatures for continuous operation is considerably more than it really is. This is brought about by the fact that the data on which the values are based are obtained from short time tests rather than those represented by continuous operation.

IT IS NOT generally known at this time that at elevated temperatures the short time test values of a steel vary very materially from the long time test values. Especially is this true when the temperatures considered are above 600 degrees Fahr. At 900 degrees Fahr. the short time strength of low carbon boiler steel, in which the carbon varies from .08-.12 per cent is 32500 pounds per square inch, while the long time strength of this material is 15000 pounds per square inch. For .20-.30 per cent carbon steel the values are 35300 and 18000 pounds per square inch respectively. The average strengths of these two steels at ordinary temperatures is 49000 and 59000 pounds per square inch respectively.

When such values are appropriately applied to the design of pressure containers which are to be used continuously over a long period of time

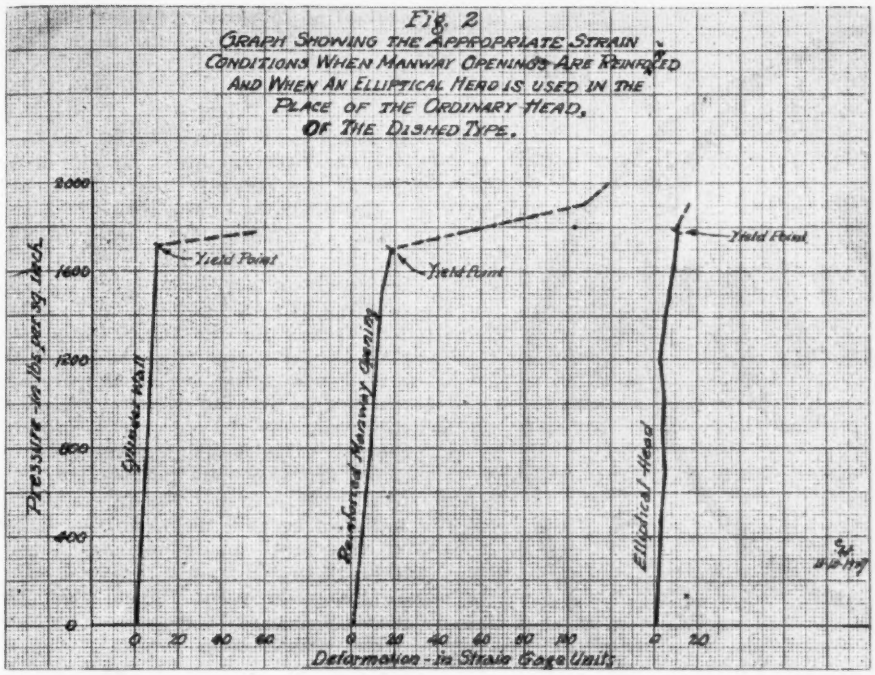
Fig. 2
Graph Showing the Appropriate Strain Conditions When Manway Openings Are Reinforced And When An Elliptical Head is Used in the Place of the Ordinary Head, Of The Dished Type.
Pressure - in lbs. per sq. inch.
2000
1600
1200
800
400
0
Yield Point
Yield Point
Yield Point
Reinforced Manway Opening
Elliptical Head
0 20 40 60
0 20 40 60 80 100
0 20
Deformation - in Strain Gage Units

it becomes obvious that the long time test result is the only safe value to use. At ordinary temperatures the long and short time test values for steel are practically the same.

Whether or not a factor of safety of 3 is sufficient when based on the long time strength at elevated temperatures with proper reinforcing of openings and proper shape of heads and 100 per cent joint in the metal is very difficult to determine.

For a considerable period pressure containers have been designed for higher temperatures and pressures than that at which they were used. With a desire to gain some of the increased returns from using higher temperatures and pressures certain operators are now using the limit which the original designs called for and in consequence they have had troubles which were not apparent when operating in the original manner.

This, it is believed, is largely due to the fact that the true factors of safety in the design have not been ascertained or understood.

Determination of the Value of Design

THE general principles used for determining by laboratory methods the value of a design are by no means new, although the method of application described will have some features which may rightfully be termed new. It is well known among engineers that Young's Modulus can be used to determine the stress conditions in a bar without resorting to failure. The value of Young's Modulus for all of the different kinds of steel which an engineer uses in quantity falls between the values of 29 and 31 million pounds per square inch. If, therefore, we use an average value of this modulus and measure the values of strain which occur we can by a correct application of the Mathematical Theory of Elasticity discover the stress conditions at any point in a pressure container within the elastic limit of the steel used in its construction.

In the case of a pressure container with various openings and changes of section and with heads of the usual shape or methods of joining the pressure containers together which produce points of discontinuity, the application of the mathematical relation of shape and discontinuity to the theory of elasticity is often almost impossible even to the most expert mathematician.

IT IS believed, however, that the peculiarities associated with steel will do all of the intricate mathematical calculations if properly applied and coupled with the mathematical relations which apply to a simple cylinder.

The ordinary steel used in the construction of pressure containers has a yield point which is very pronounced. The accompanying diagrams which are made from a pressure container which had a 2-inch wall thickness, a diameter of 6 feet, length of 40 feet and constructed using a dished head, bring out the points it is desired to make. These diagrams show the relation between test pressures and strains. The strains are measured by using either a 4-inch or a 2-inch Berry strain gage over an appropriate gage length.

In Fig. 1 has been plotted the relations between test pressures and strains which were obtained at three different points in the pressure container. In the first curve is plotted this relation for the cylinder at a point sufficiently far removed from any discontinuity, due to design or

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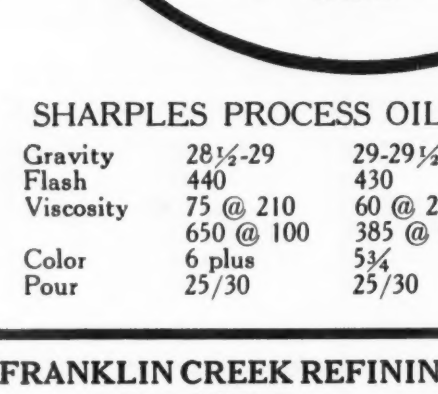

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method of fabrication, to test out the simple cylinder formula used, i.e.

$$S = \frac{PD}{2t}$$

in which S = stress in the material, P = the test pressure, D = the diameter of the pressure container, and t = the thickness of the wall.

The pressure in the cylinder at the indicated yield point was 1740 pounds per square inch. Substituting this value in the above cylinder formula for the vessel tested, the yield point value would be 31300 pounds per square inch. The average test results for the different pieces of steel used in the pressure container showed a yield point value slightly below 32000 pounds per square inch. It will be seen that the formula used is correct because the yield point given by this steel under ordinary tensile tests, is approximately the same value as the yield point found when the pressure is used in the above formula.

The second curve which is for an unreinforced opening shows that the yielding occurred at a pressure approximately 40 per cent below that in the cylinder proper. In the third case which is for the most stressed portion of the head the yielding occurs about 26 per cent below that of the main cylinder when considering that the thickness of the head was ⅛-inch greater than that of the cylinder.

The yielding in each case occurred at the same stress in the steel and the conclusion to be drawn is that the intensification factors due to design or shape are as indicated by the ratio between the strain in the main cylinder and that in the dished head or unreenforced section of the vessel.

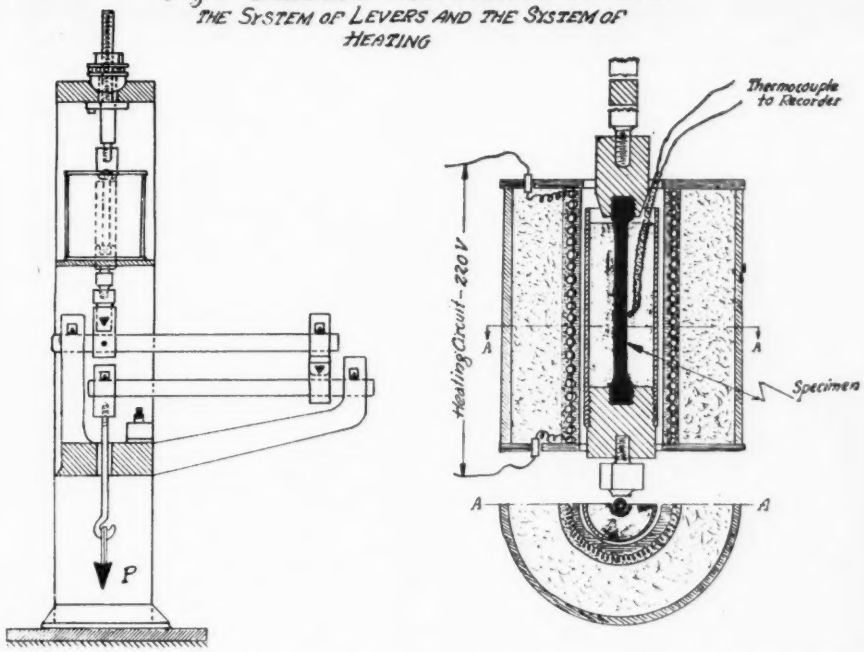
The dished head used is not of the ordinary shape generally used by builders of pressure containers. The ordinary dished head has in general greater stress concentration at the joint between the main radius and the small radius because the small radius is ordinarily much shorter than for that on heads used in the investigation referred to above.

A subsequent test was made on the same pressure container in which the openings were reenforced and on one end an elliptical head of proportions indicated by an appropriate mathematical analysis was introduced. Fig. 2 gives the results obtained and shows that with adequate reenforcing and an appropriate design of head the intensification factors due to discontinuity and shape have been eliminated.

What, you may ask, has this to do with the factor of safety? The answer is that it has eliminated a large per cent of the factor of ignorance which has been included in the so-called factor of safety and has made the design more safe, although when calculated by using the ordinary formula this is not apparent.

In the operation of oil cracking stills and pressure container equip-

Fig. 3 Diagram of Testing Apparatus Showing the System of Levers and the System of Heating



ment the question of corrosion is an important factor. It is desired to point out here that a safe design for a pressure container must consider this important item and also to say that the corrosion rate of steel under stress is materially different from what it is under no stress.

The story of corrosion testing is very involved but it is sufficient to say here that the speaker has been working on this problem for over a year, and is keenly aware of some of the intricate matters involved.

THE matter of the strength of metals under elevated temperatures is one of great importance to the oil industry as has been indicated earlier in this paper. It is the purpose at this time to indicate the methods used by the laboratory the speaker is associated with and to indicate the reason for adopting these methods of testing.

The men who first recognized the importance of creep in steel at elevated temperatures were Dickenson and Lea.*

Since that time many investigators have worked on this interesting question. A selected bibliography dealing with long time tests and methods of testing is appended to this paper as a help to those interested in a further study of this matter.

In a study of methods adopted in other laboratories for testing steel at elevated temperatures two things were apparent which if eliminated would produce more reliable test results than had heretofore been obtained.

The first is the need for uniformity, in a considerable section of the specimen, of the temperature at which the metal is to be tested, and the other is the elimination of oxidation of the surface of the specimen, which in a very long time test materially affects the cross section of the piece.

If a specimen is relatively small as compared to the thickness of the wall of a pressure container this becomes an important item.

In Fig. 3 is shown the furnace construction which was adopted. The specimen is immersed in a bath of liquid composed of lead for the temperatures which are above its melting point and another appropriate liquid is used when considering temperatures lower than that of lead.

The thermo-couple which controls the temperature over a long period of time is immersed in this liquid as well as the specimen. The liquid has the quality of preventing oxidation of the specimen and also of keeping the specimen over the total gage length at a reasonably uniform temperature.

Certain investigators using ordinary atmosphere in the heating furnace found that the size of specimen had materially affected the results which they had obtained and have stated that the small ¼-inch specimen gave much different results from the ½-inch specimen and therefore was not a reliable specimen to use.

This we find is not the case when using the above method, which prevents oxidation, and providing the elongation is taken over 4 diameters in both cases instead of over the same gage length.

In the design of testing machines great care was taken that the load was axially applied and the lever system was constructed so that all knife edges were in the same plane on any one lever. No cylindrical bearing for the lever system was used. The temperature control used was a Leeds & Northrup recorder-controller which was adjusted to very close limits.

*See bibliography at end of paper.

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Brief Table of Contents

CHAPTER I THE MANNUFACTURE OF CUP GREASES
CHAPTER II CUP GREASES
Uses, Testing, Analyses and Patents
CHAPTER III SODA BASE GREASES
CHAPTER IV MIXED SODA LIME BASE GREASES
CHAPTER V SETT GREASES
CHAPTER VI LEAD BASE GREASES
CHAPTER VII MISCELLANEOUS GREASES AND COMPOUNDED OILS
CHAPTER VIII MECHANICAL MIXTURES
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The method adopted in producing test results is essentially that first used by H. J. French* of the Bureau of Standards and can be described as follows:

Several test specimens were made from each steel. Each successive test specimen was introduced in the testing machine at successively lower loads and the time taken for it to fracture was carefully recorded. The load when once applied to a specimen was never changed. The stresses at which the specimens failed were then plotted against the time of failure and a curve as shown in Fig. 4 was drawn.

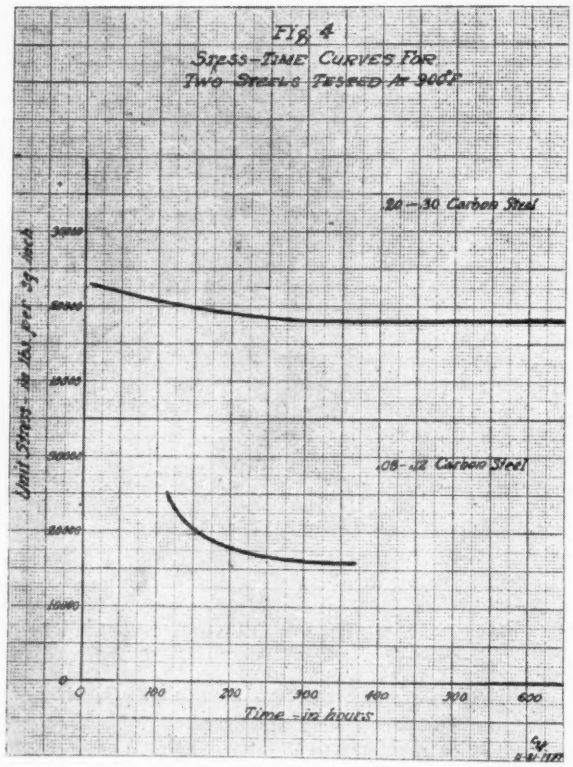

Fig. 4 represents test results at 900 degrees Fahr. on two steels. The lower curve shows the value of the long time ultimate strength for a .08-.12 per cent carbon steel. The upper curve is for a .20.-30 per cent carbon steel. It will be noticed that test values for 300 hours are the same as those for a longer period. Tests have been carried out by this method for various steels up to 2000 hours. It has been demonstrated that the 300 hour value gives the same results at 900 degrees Fahr. as if the test were prolonged for a longer period of time. It is assumed, however, that this may not apply when higher temperatures are used.

Summary

THE application of factors of safety to pressure containers which are to be used at elevated temperatures should only be done when considering the factors of shape and discontinuity as applied to design and appropriate elevated temperature test results and corrosion test results as applied to the metal used.

If a factor of safety of 3 is used in the main cylinder of a thick walled container and large openings are not reenforced, causing a 40 per cent stress intensification, then the factor of safety at the opening becomes 1.8 and not 3 as is supposed.

It is very clear that all openings in pressure container walls should be reenforced and that the shape of heads for thick walled pressure containers should be other than the ordinary dished head. The amount of reenforcing necessary is a matter of experiment depending on the fabrication methods used in joining the container together.

For a manway opening in which the joint efficiency is 100 per cent the width of reenforcing ring to make this portion of the vessel 100 per cent is a minimum of 40 per cent of the diameter of the opening. This ring should be of the same thickness as the vessel wall.

For the heads a shape represented by one-half of an ellipsoid of revolution in which the minor axis is one-half the major axis is the one which causes no greater stress in the head than is found in the most stressed portion of the plain cylinder.

The strength of steel at 900 degrees Fahr. which is the maximum temperature at which it is recommended that ordinary carbon steel might appropriately be used is for the .08-.12 per cent carbon steel 15000 pounds per square inch and for the .20-.30 per cent carbon steel 18000 pounds per square inch instead of the higher values generally considered and which are obtained from short time tests. Above 900 degrees Fahr. the strength values of carbon steel under long time tests fall off very rapidly.

Corrosion results obtained from unstressed specimens in pressure containers do not give the same relative values as those obtained on specimens which are appropriately stressed under the corrosion conditions found on the inside of pressure containers. The stress conditions can be readily obtained by hanging a dead weight on the bottom of a string of specimens.

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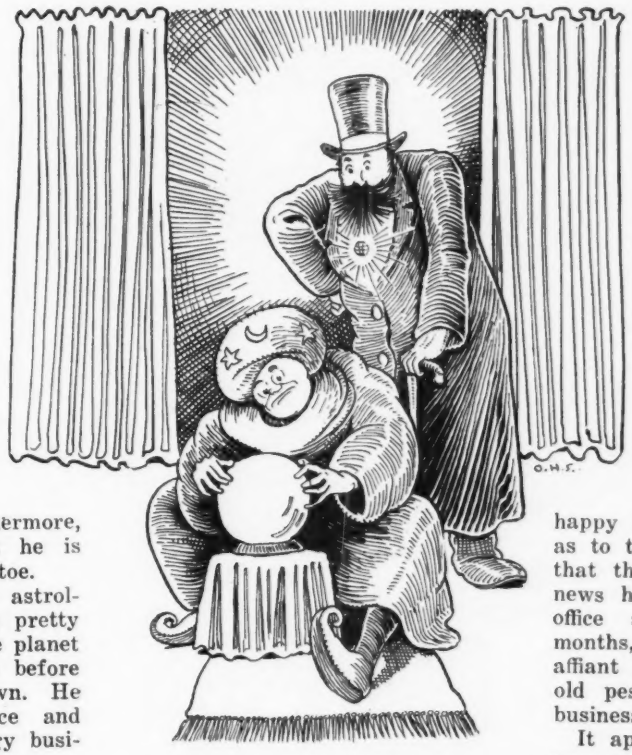
Oil Business Must be Wary of Blondes And Brunettes Both in 1928

Curtains Parted for Brief Glimpse into Future When the Honorable Rollin Stone Interviews Seer

"LET the Heavenly Lights Guide You in all Affairs of Life."

This, reasoned I, cannot make matters any worse. Between the over-production and low prices on one hand and the doctors who are writing prescriptions for the oil industry, things are about as badly gummed up as they can be. Maybe astrology would help.

Right where Third street crosses Main in Tulsa slightly to the left side of the heart of the oil industry, you might say, there is an eminent inspector of the stars. He is not a fortune teller, he says, and furthermore, he is from India. At least he is an Indian. He may be an Otoe.



Well, up the stairs to this astrology parlor we went, arriving pretty much out of breath so that the planet pusher waited for some time before we could make our wants known. He possessed himself in patience and didn't hurry us. The astrology business was on dead center and a customer could be given some time.

The business has taken on modern ways since we used to patronize it to see about affairs of the heart and whether to throw our influence to the blonds or the dark ones. The astrologer we went to yesterday, however, had the old familiar dish towel around his head and the linen duster and sash and there was even a crystal ball in the room. But then, he says, science has done a lot also to help his profession as it has the oil industry.

We got down to fundamentals as soon as we had our breath back.

"What," said we, "can you do for us on the future of the oil business? We are so worked up over it. There is all this fuss going on in Washington, Secretary Work is writing notes to Henry L. Doherty and Doherty is telegraphing his replies. Mark Requa has a plan of some kind and the Marland committee is still in existence. Surely your science can give you some guidance, some light into the future. What will you charge for an ordinary prediction, just a sort of highway map of the future, leaving out the township and range? The details will come later, but we do desire to know the general direction."

The fee for five ordinary questions and copy of personal horoscope would be $3. It was decided to risk that much on the future of the oil business and the "Horory Astrologer," to use his own term, was asked to bill the American Petroleum Institute, the writer not knowing that his own publication would pay that much to be sure what was going to happen in the future.

This commercial side of the interview being disposed of the reading was decided upon. A few preliminary questions had to be disposed of. What, for instance, was the date of the patient's birth? Also the hour. The latter had to be passed, for at that momentous time the one clock in the Stone household had run down and in the general excitement of the event, nobody thought to check up with the neighbors. It was sometime after dark and that is all the family knows about it. The swami was willing to go ahead, even without the time of day.

The writer deplores the extent to which matter of a more or less personal nature must necessarily be injected into this Revolutions of the oil industry; but it seems that his fortunes and those of the oil business are intermingled, to the detriment of which, alas, cannot be told now.

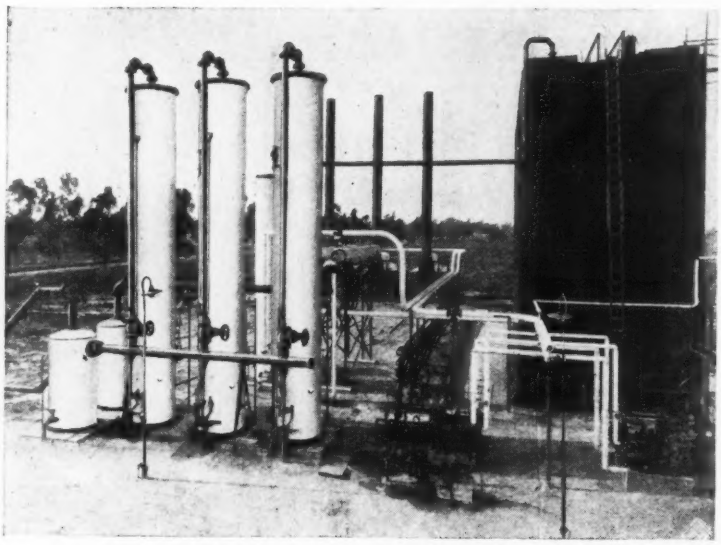
The colored picture of the man with his innards exposed plays quite a part in astrology. His likeness hangs on the swami's wall. Also, there is something in the scheme about the various planets and the seer calls them all familiar by name. Skipping the details about your correspondent's happy home life and the warning as to the opposite sex; the assertion that the visitor lacks energy, which news had been broken by the home office several times in as many months, and the prediction that your affiant will live to be a doddering old pest, we come now to the old business and the outlook.

It appears that we must make no move of any kind until Dec. 30. That, my friends, is a date to be kept in mind. Anything at all that is done between now and then is certain to turn out wrong. The industry must lay low and wait for a turn among the constellations.

Speculation is going to turn out very poorly in December. Here there was no sense in paying $3 to have present knowledge confirmed. Unless Seminole, for instance, declines one 100,000 barrels by Jan. 1, Rex Dawson, of the Carter Oil Co. will profit $10 worth on one bit of speculation we know of.

Things will sort of drift along in our personal affairs, as well as in the oil business, until Dec. 30, but, on the following day, there will be a slight turn for the better and on up to Feb. 18 Venus or Urapiter, or somebody, will be in the ascendancy and the tank wagon market will again be below the service station price.

Then comes another squally period, Feb.19-March 18, when we must be on guard against fraud. In this period whoever is the Ray Collins of West Texas, will have his time pretty well taken up trying to pro-



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rate the Yates pool production and George Otis Smith will be elected president of the A.I.M.E. During this period Waite Phillips will acquire control of a different company each morning, turning it back in the evening. Shortages of oil will be predicted and the Federal Oil Conservation Board will stop working on its report, but will resume the day following, when Walter C. Teagle will predict overproduction.

The seer warned against signing any contracts in the foregoing period, so that vacuum cleaner the wife spoke of will have to wait. Anyway, he says she is only the first of our wives.

Several companies will either pass dividends during this period or pay them in United Cigar store coupons. The latter will be redeemable in merchandise.

"From March 19 through April and to May 21 will be a wonderful time," said the astrologer. "In the last part of May or the first of April a gain is shown from the government."

It took some prodding to get this out of him. What we wanted to know was whether Dr. Work would change the constitution so as to permit him to run the oil business. The language of the answer admits of no double meaning. The entire conservation board will resign, if the stars know anything about it. Taurus, the Bull, is in the ascendancy now but the matadors of Congress will attend to that little matter.

We were advised that the period between May 22 and June 20 is quite dark, in a personal sense, and that it will be well to lay aside that time from business. No chances whatever should be taken. I shall use my full influence to have NATIONAL PETROLEUM NEWS suspend publication during that period.

THE stars bode good for the rest of the year. Several new grades of gasoline will be on the market and the Q.D.A. will apply to any gasoline purchases made for new Ford cars. The merger negotiations between the Transcontinental Oil Co. and the California Petroleum Corp. will be resumed, after having been broken off several times, and a few other companies will talk of entering into companionate marriages. There will be great progress made toward the oil industry's Great Goal—a filling station for every car.

For my $3 I was permitted to ask "one to five important questions," as the seer put it. I will stand 50 cents of the fee myself, as four of the questions were used up in trying to get a line on the possibilities of certain stocks on which I am long and which are not now doing so well. For the fifth question, I tried to ring in Dr. Work and Henry L. Doherty at the same time. The seer

declined to be specific but said that if I would submit their birth dates and $3 more, he would give the answer.

Will these gentlemen forward to the writer the necessary information and will the A.P.I. guarantee the fee for this research? I am convinced it may lead to something.

Maybe, after all, astrology is not specific enough. Probably a palmist would be more direct and convincing.

Fuel Oil Demand Greatest In Seaboard States

WASHINGTON, Dec. 17.—Consumption of fuel oil in this country is concentrated largely in seacoast states, announces a bulletin of the Bureau of Mines, following a survey of gas and fuel oil distribution during 1926, conducted in cooperation with the American Petroleum Institute. Four-fifths of the domestic deliveries of these oils were made in states bordering the Atlantic, Pacific and Gulf of Mexico. The survey covered distribution of 340,481,000 barrels or 97 per cent of the oil marketed.

Two-thirds of the gas and fuel oil marketed last year was delivered to domestic users and a third to ocean-going vessels. Among the domestic users railroads took 74,704,000 barrels, or 29 per cent and refineries took 48,846,000 barrels or 19 per cent; gas and electric power plants consumed 13 per cent; smelters, mines, steel mills and foundries 10 per cent; other manufacturing plants 18 per cent.

Refinery consumption of fuel oil was 4,000,000 barrels less in 1926 than in 1925, a recent Bureau of Mines survey shows. There was a small increase in coal consumption, material increase in consumption of natural and refinery gas, and a considerable increase in use of petroleum coke. South central and southwestern railroads consumed four-fifths of fuel oil used by railroads, and two systems alone used more than half of the total.

Domestic burners in 1926 consumed 2,804,000 barrels of gas and fuel oil; furnace oils and lighter distillates were used to the extent of 6,000,000 barrels. Office buildings, apartments, schools, hotels and hospitals last year consumed 14,266,000 barrels of gas and fuel oil.

Domestic deliveries in territory north of the Ohio and Potomac rivers, in the center of the bituminous coal region, was 86,694,000 barrels, or 34 per cent of the national total.

Copies of the complete report of this national survey of fuel oil distribution may be obtained from the U. S. Bureau of Mines, Department of Commerce at Washington, or the American Petroleum Institute at New York.

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FREEDOM

Merchandising Special Oil Products Profitable to Milwaukee Jobber

By Ward K. Halbert
N. P. N. STAFF WRITER

Cleaners naphtha is sold at O'Neil Oil Co. stations in Milwaukee. The station in the picture is in one of the most exclusive neighborhoods. One of the 12 ten-gallon visible vending pumps dispenses cleaner's naphtha exclusively the year around. It is the best paying pump on the lot

MILWAUKEE, Dec. 17

GENTLEMEN of Milwaukee, when they assembled socially or for business conference, until recently had a way of lighting their cigars from Clyde H. Fuller's lighter if he happened to be present. They remarked about it first. "Clyde has a good lighter. It looks very much like mine but it works without coaxing."

Mr. Fuller is president of the O'Neil Oil Co. He knows as well as any oil man what to put in cigar lighters to make them function. So he advised his friends against the use of sewing machine oil and Stoddard solvents, recommending "O'Neil's Flash" of which he would gladly supply a small can. He is now supplying the city of Milwaukee's rapidly growing demand.

O'Neil's flash is a high test gasoline. All the company does to it is pack it in pocket size cans. It came into being through the oil man's personal favor to a few intimate friends and is now being distributed at the rate of several gross a week. It sells for 35 cents a can at cigar counters and drug stores all over town and pays the O'Neil Oil Co. a substantial profit.

The demand has grown without advertising. In fact O'Neil's Flash is an advertising medium itself. The bright colored little can sits on the desk in front of hundreds of Milwaukee's executives reminding them that O'Neil Oil Co. has high grade merchandise for sale at convenient outlets. Mr. Fuller thinks the advertising is worth more to the company than any of the novelty advertising stunts they use, in addition to the fact that it pays its own way handsomely.

Cleaners' naphtha, another product that is slightly out of the beaten path of the average oil jobber, is being marketed by the O'Neil Oil Co., with satisfactory profits and small expense. It is available at all of the company's 30 stations, which are within a radius of 50 miles of Milwaukee. Some of the stations have made a remarkable showing with it and one of them is the company's best Milwaukee station.

OUT in the city's most exclusive residence section, where building restrictions are so exacting as to generally exclude oil stations, is an elaborate retail outlet which is O'Neils "show place". The costly stone building occupies a corner lot, one fourth of a city block. The grass plot in front of the station is as big as the lawn of any of the residences nearby. There are twelve 10-gallon visible vending pumps. One pump dispenses only cleaners' naphtha. Of course it does not sell as many gallons as one of the gasoline pumps but it is the most profitable pump on the lot. The spread on a gallon of naphtha is equal to the return on five or six gallons of gasoline. The naphtha pump has measured out more than 300 gallons a month several times and that is as profitable as selling 1800 gallons of competitive gasoline. The management wishes the other eleven pumps averaged 1800 gallons a month.

IT IS not only the elite market of the city that provides a demand for cleaners' naphtha. In another section of Milwaukee is a station that caters to a less affluent class. It is run by a young man named Robert E. Lee whose selling aptitude has made money out of side lines. Mr. Lee has a large black board on each side of the station door, outside facing the drive. At odd intervals he writes advertising on these blackboards, pushing seasonable products.

One of his best "ads" was a concrete illustration of what naphtha will do. He drove two nails in the frame of one of the blackboards. On one nail he hung a greasy, dirty cap and on the other a spotlessly clean one. The copy said "LOOK, what 7c worth of our naphtha will do." The advertisement stayed up two or three days and Mr. Lee is still getting business from the favorable publicity, he says.

A third profitable by-product of the O'Neil plant is distilled water. This might better be called an economy because it is given away at the company's own stations, but dealers buy it at the rate of 8 cents a gallon in drums. Water is distilled at the plant, heat for the still is taken from

Action for Profit

LOUIS D. PIERCE, head of the Pennsylvania Petroleum Products Co., Providence, R. I., is another oil marketer who has seen possibilities for profit and advertising in selling fluid for cigar lighters.

A well-known make of lighter is manufactured near Providence. Mr. Pierce fixed up a special cut of gasoline that would give good service in lighters and went over to interview the manufacturer of the lighter. He liked the filler and arranged to buy it from Mr. Pierce and distribute it in the same way the lighters are sold.

The filler is put up in special 8-ounce cans that carry the name of the Pennsylvania Petroleum Products Co. as a general oil marketer.

the exhaust of the plant's boiler which otherwise would be wasted.

Selling goods other than petroleum products is an old policy of the O'Neil Oil Co. For years the company was called the O'Neil Oil & Paint Co., and marketed alcohol, linseed oil and turpentine. The name was changed on Jan. 1, 1926 when George F. O'Neil, founder of the institution in 1893, retired as manager to accept the chairmanship of the board but the company is as much in the alcohol, linseed oil and turpentine business as ever.

These products, Mr. Fuller points out, are handled like oil is. The same plant, sales force and clerical force can handle them. They fit conveniently into an oil company's tanks, unloading equipment, barreling plant and cooperage shop. The company has 250,000 gallons of storage now used for alcohol which will be filled with gasoline before spring.

All of O'Neil's 14 salesmen travel by automobile. The company supplies each man a Ford car or its equivalent, applying the price on a car of the salesman's choice. When they enter a town and call on the oil trade, they visit prospects in other lines and sell alcohol, linseed oil or turpentine.

Alcohol finds a ready market among garagemen and filling station operators in the fall and winter. It can be sold without supplementary calls. There are several other items which the salesmen can offer their regular customers in the same way; automobile soap, chamois skins, fender brushes, sponges, waste, wiping rags, gasket shellac, etc.

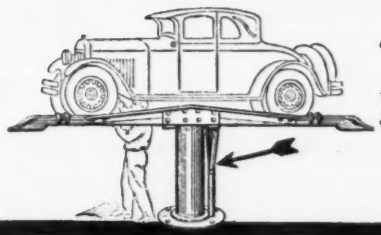
JAMES S. HARRISON, sales manager of O'Neil Oil Co., says while the automobile registration was increasing 8 per cent in Wisconsin, O'Neil Oil Co's. sales of "Velvet" motor oil increased 15 per cent over the biggest year in its history. In the meantime total gasoline sales increased 10 per cent, of which the greater share developed at filling stations which showed a 20 per cent boost in volume.

This improvement, the management thinks, has been accomplished mainly with two things; a change of policy which was a departure from long established practices of Wisconsin oil marketers, and a liberal advertising appropriation. First, the O'Neil company did something different and, second, they told the public about it, repeatedly and emphatically and made it remember.

For years Wisconsin has been recognized as a high test state. Major Independents of Wisconsin have advertised premium gasolines, and boosted high test motor fuel until the public has been "sold" on the superiority of high gravity.

The O'Neil company's peculiar move was to supply its trade with a high

"Quick Service"



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42c Thames St., New York, N. Y.

(Formerly Oakley Chemical Co.)

OAKITE

Industrial Cleaning Materials and Methods

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A MERRY CHRISTMAS
and a
BUSY NEW YEAR

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We welcome the New Year for the better business which we hope it will bring to all of us.

"See you in 1928"

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Oil City Pa.

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Kerosene
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test product only incidentally, recommending especially "Gasoneil", a product selling at the same price as Red Crown. In their advertising they used the slogan, "A Perfect Motor Fuel, Less the Extra Cost." The gasoline in question was a 400 end point product. "Gasoneil" was sold through pumps having a red band in addition to the company's colors of orange and black. And all "Gasoneil" advertising mentioned "The pump with the red band."

The trade name "Gasoneil" was developed in an amusing way. One day Mr. Fuller was writing something on a memorandum pad when the telephone rang. His pencil was writing the word "gasoline" when he lifted the receiver and said "O'Neil". The word that actually appeared on the pad was "Gasoneil". As soon as it was given publicity as the name of the new motor fuel, it got public acceptance.

The word has in it exactly the same letters as gasoline. It also includes the company's name, and a clear phonetic application to a motor fuel.

The accident from which "Gasoneil" was developed, took place early in the spring of 1927. Taking advantage of the popular interest in aviation, within five days of the time Charles A. Lindbergh landed in Paris, a clever novelty advertising stunt was used to give quick publicity to the new trade name. The advertising department evolved a colorful windshield sticker in the shape of an airplane. It was in orange, black and red and carried no lettering except the word "Gasoneil".

The sticker was about 8 by 8 inches and easy to apply. Popular interest in aviation created a demand for it that caused the company printer to go to press three times with the same job. Thirty-thousand had been passed out. The showing of the sticker in Milwaukee was as complete as that of the famous red bathing girl, Mr. Harrison believes.

"VELVET" is the same trade name the company has used for its lubricating oils for 33 years. Not long ago a big integrated company sent a special representative to Milwaukee to buy the name "Velvet" to use in its own motor oil advertising. He was told that his company could acquire the name Velvet by purchasing the O'Neil Oil Co. Mr. Fuller thinks the name is a powerful factor in the motor oil sales campaign which has been so successful in the last year.

Most of the motor oil advertising has been in a newspaper campaign. The bulk of the first appropriation was spent with the "Wisconsin Farmer", an agricultural journal with circulation concentrated in the state. The company is now about to start another campaign which contemplates the purchase of space in 166 small town papers, all in Wisconsin.

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What Is It?

Does it mean merely buying oil at one price and selling it at another? Supplying those who patronize you because they happen to, or because they think you are a fine fellow?

Profit is one of the most interesting and intriguing words in the English language, and to capitalize it you must sell not only yourself and your service, but some real, understandable reasons why the oil you handle gives the best service.

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Producers - Pipe Lines
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HOUSTON, TEXAS

Gas Lift, Accompanied by Repressuring, Found Effective at Seal Beach

By Wm. E. Green
N. P. N. STAFF WRITER

LOS ANGELES, Dec. 16

AS A RESULT of the repressuring of partially depleted sands now being conducted by the Marland Oil Co. in the Seal Beach field in California, under the immediate direction of A. H. Bell, production engineer for that company, a number of important conclusions have been reached concerning this method to improve production.

The experiment started Sept. 8, when gas was first started into Marland's Bixby 3. Later, Bixby 3 was restored to production and the gas started into Bixby 5 and 6, located more favorably with reference to other Marland wells. The gas repressuring experiment not only resulted in increasing production at a number of Marland wells, but at the same time increased production for the Standard and the Associated Oil Co. on adjoining leases.

It has been concluded that the gas lift can be used to greater advantage in connection with repressuring and that the gas lift will reduce the gas-oil ratio if applied early in the life of the well. Another conclusion is that the repressuring system is entirely practical only when all companies interested join hands, or where the company has acreage large enough to operate without reference to offsets. In the case under discussion, the Marland experiment has proved beyond doubt that repressuring of sands brings worthwhile returns to the company, and at the same time benefits the wells on offset acreage.

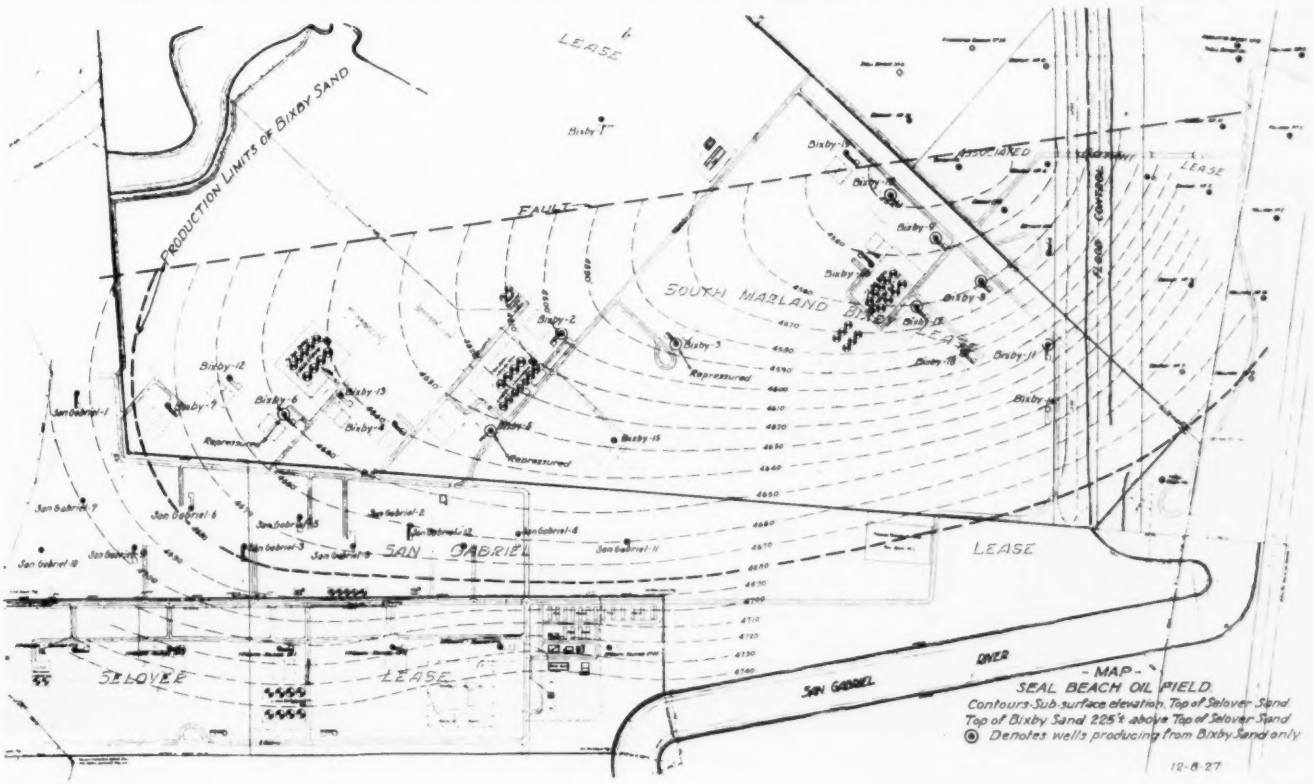
The experiment has indicated it is better to drive the oil up-structure than down-structure. Also under this method there would not be the need for as many inside wells as under the old practice. The experiments have indicated to a number of engineers that the total ultimate recovery on a lease will be greater under the repressuring method than under former methods of producing wells.

Another interesting fact developed is that gas can be pumped into a well under a pressure as high as 1850 pounds without danger, as this was done on the Marland lease for a five-minute period. This extreme high pressure was not needed, however, as it later developed that a pressure of about 1500 pounds was sufficient for the peak load, when the fluid in the hole was being pushed out of the hole and in starting the flow of gas into the formation. A pressure around 1400 pounds is now being used.

Recently it became necessary to stop pumping gas into one of the Marland wells for a few days, and within two days, production started to decline in nearby wells. Repressuring started again at the second well and it was expected that production of the adjoining wells would return to normal.

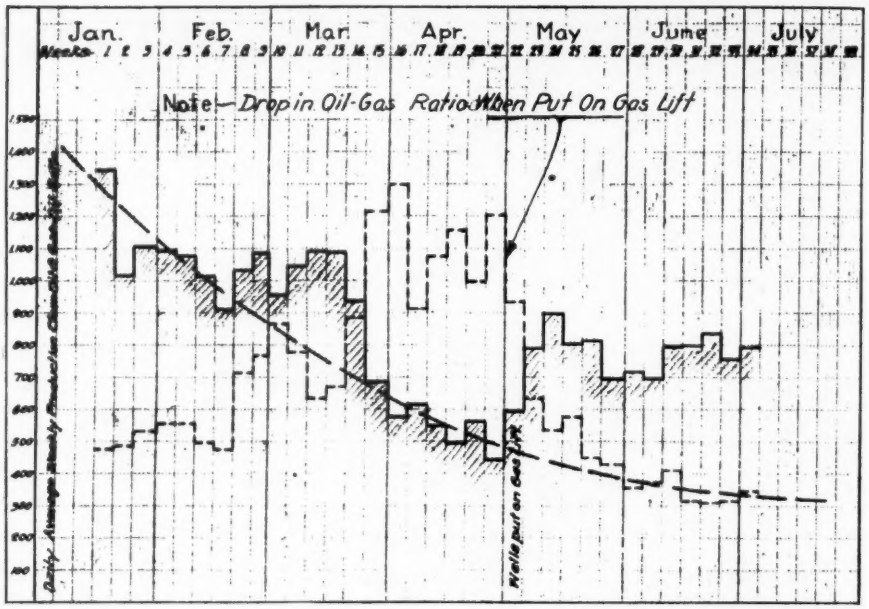
The repressuring method indicated that "trapped" oil that might never be produced could be secured. Recently it was found that some of this "trapped" oil between Marland's Bixby 5 and Standard's San Gabriel 2 was coming out under the "push" of the gas as it penetrated the formation, thus securing oil that probably would have always been lost unless a new well was drilled at the right point.

Map of Seal Beach Field, Showing Wells Affected by Repressuring Experiment



It has also been found that, under the combined gas lift and repressuring method, the gravity of the oil is not changed sufficiently to make any change in the price of the product. Also the natural gasoline content of the gas, after being used once, was found to have about the same content as when first run through a natural gasoline plant.

The first plan for repressuring was to pick a centrally located well, with the expectation that the oil production up-structure would be increased and that the water which had encroached up to the center of the lease would be driven back towards the edge wells on the opposite side of the lease. Upon application, it was found there was a very rapid increase in production of the wells upstructure but no appreciable change in either the water content or production of the wells down-structure, which were producing, both before and after the test, fluid which contained about 90 per cent emulsion.

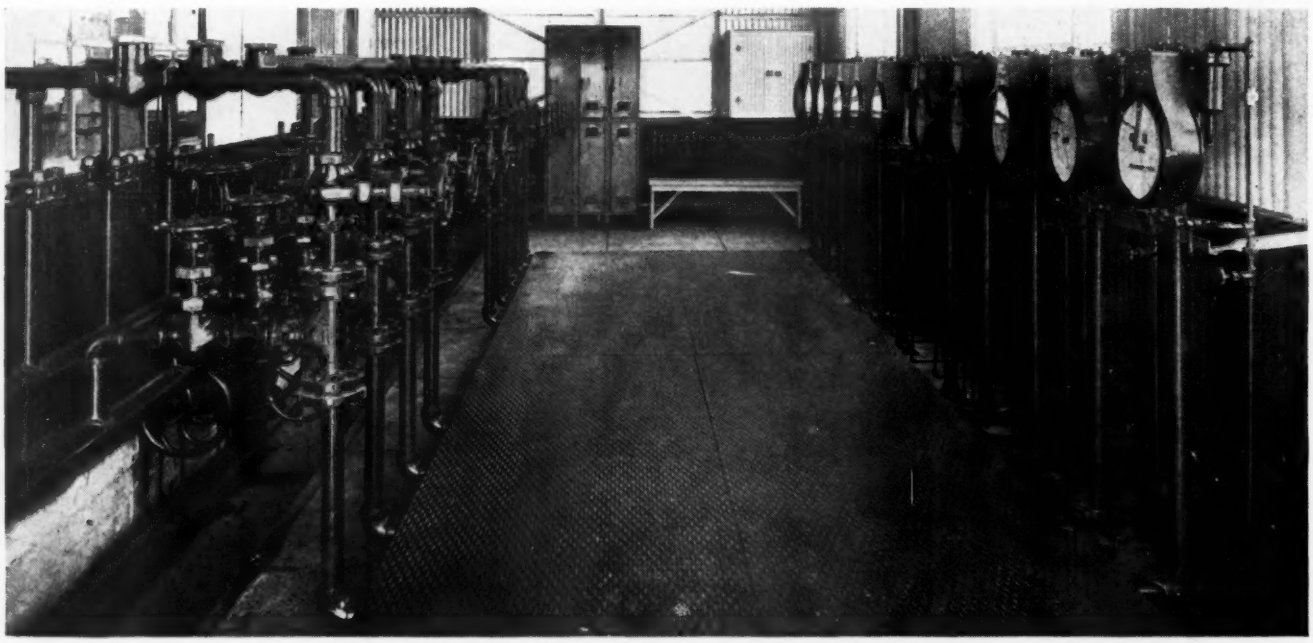


Composite decline curve based on daily averages per week for Bixby wells Nos. 2, 5, 6, 7, 8, 9, 12 and 17. Straight black line in steps is production of clean oil. Broken line in steps is gas-oil ratio. (Formation gas only). Wells 2, 9 and 17 also affected by repressuring

The basis for arriving at the pressure required for the repressuring work was by taking the static fluid level in the well where the gas was to be introduced and calculating the pressure exerted by this column of fluid at the top of the sand. The "Bixby" sand receives its pressure from a water drive and the fluid stood very high in the wells. When the gas was actually introduced into the sand it was found to check out within 50 pounds of the previously estimated requirement. As there was very little precedent to work on in selecting a machine of large capacity to work at 1500 pounds pressure, the design of special high pressure cylinders to meet requirements was left to the C. & G. Cooper Co. The actual pressure required to start the gas into the sand amounted to 1500 pounds, which later dropped to 1400 pounds. Volumes average about 800,000 cubic feet per well per day.

It seems to be a common impression that the cost of compressing gas to such high pressures is excessive, but, when considered on a basis of compression ratios, it will be seen that the work in compressing gas from 600 to 1500 pounds is actually less than that required to compress it from 30 pounds to 600 pounds. Consequently, the one 170 H. P., 1500-pound compressor will almost handle the output of three of the same size engines at 600 pounds. The discharge from this machine is taken out of the end of the cylinder through forged steel elbows and the two lines taken outside the building where they join together and are carried underground until they are a safe distance away from the plant.

The measurement of the gas is handled on the suction of the machine rather than the discharge in order to use lower pressure equipment. All extra heavy high pressure pipe and high pressure steel fittings are used and the connections into the head of the well are made with as few fittings as possible, for safety, with a check valve at the well head to prevent backing up of the gas in the event of a shutdown at the plant. It was found advisable to put a blow-off connection from the well head to the sump, as the well will usually flow when the pressure is relieved and small bleeders suitable for gas would



Gas lift meter control room at Bixby compression plant, Seal Beach, Cal.

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High Yield of Quality Gasoline direct from the Unit.

Fractionation and Condensation under Full Operating Pressure.

High Yield of Liquid Products with a minimum yield of fixed gas and carbon.

Low yield of Residue Fuel Oil of good Quality.

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not handle the flow of oil.

The tubing is carried down very close to the top of the sand and set with a wall packer and the space above the packer filled with water to prevent any pressure coming on the casing in the upper part of the hole. The head is closed in tight. Due to the extremely high pressures and temperatures of the gas it is necessary to provide adequate expansion provisions where a very long line is used and high grade separators are necessary on the intake lines to prevent condensation troubles in the cylinders.

AFTER three months Bixby 10 is still producing clean oil at its maximum rate of production practically equal to its initial production and the well is still flowing. Bixby 9, which was operating on the gas-lift with plain tubing, increased several hundred barrels daily to a maximum of over 1600 barrels clean oil. Within the last 30 days the well has shown a slight cut which has reached a maximum of about 12 per cent.

Bixby wells 8 and 17, which were both edge wells showing a heavy cut before the repressuring work, had National Automatic Pumps placed in them about the same time that the repressuring work was started, which makes it impossible to definitely apply the credit for the increase in their production. Bixby 17 increased from an average of 600 barrels gross fluid to an average of from 1300 to 1400 barrels immediately after the introduction of the pump and had a gradual decrease in emulsion cut over a period of two months, when repressuring in Bixby 3 was stopped and started in Bixby wells Nos. 5 and 6, which are farther away. The production then declined to about 1100 barrels, which would indicate that the production increase was at least partially due to the repressuring work, and the cut immediately increased again to its former high figure.

Bixby No. 9 decreased in production in a similar manner, dropping down to slightly below its former production. Bixby 10, however, increased approximately 150 barrels during repressuring in Bixby 3, and increased 350 barrels more after the switching from Bixby 3 to Bixby 5 and 6. The increase in gas production with all of these wells seems to be in direct proportion to the increase in oil production, keeping their oil and gas ratios constant.

Production charts of Associated Bryant wells 2 and 3 throw an interesting light on the results of the repressuring on the Bixby wells. Bryant No. 3, which had been operating on the gas-lift, showed a mild increase with the introduction of gas into Bixby 3, which immediately fell off again after the switching to Bixby 5 and 6, farther away. The Associated Bryant No. 2, which was flowing at the rate of about 1000 barrels when repressuring started in Bixby 3, continued its gradual decline down to 750 barrels with a slight cut on Oct. 6.

This well was then put on gas lift and immediately jumped up to nearly 4000 barrels of clean oil the first day, which dropped down to around 2000 barrels for the balance of the month. Shortly after the switching from Bixby 3 to Bixby 5, and 6, this production fell off rapidly, dropping down to about 1300 barrels Nov. 20. This rapid decline in Associated Bryant 2 coincides very closely to the decline on Bixby 9, which fell off gradually after the changing of the repressuring wells in the latter half of October, but dropped rapidly after the first of November.

During repressuring in Bixby 3, Bixby 2, which is about 15 feet lower structurally and adjacent to Bixby 3, showed no change other than the slight increase in water content which all the wells showed the first few days after starting repressuring. The well had been gradually declining for several months and had stopped flowing 11 times during August, September and October, being brought back to flowing by swabbing each time.

After the introduction of gas into Bixby 5 and 6, the National Automatic Pump was placed in Bixby 2 and it was put on production Oct. 25 and started off flowing with a gross production of over 3000 barrels, which has declined to about 2300 barrels. The well shows a cut ranging between 50 per cent and 60 per cent. The well has flowed continuously and the pump has only functioned intermittently, allowing the gas to help the well occasionally when the flow halts for a few minutes. Bixby 3 was put back on production but so far has not shown up very well, indicating the possibility of the gas having thoroughly scrubbed the sand immediately adjacent to the well.

PRIOR to the introduction of gas in Bixby 5 and 6, Bixby 6 showed gross fluid on the plain gas lift of around 800 barrels daily, with a cut ranging around 75 per cent to 95 per cent. The well showed a slight increase in total fluid and gas shortly after repressuring work on Bixby 3. Bixby 5, on the pump, had produced about 350 barrels daily with about 60 per cent to 70 per cent cut, and during the early part of October, while trying out a large automatic pump, the well made 3,000 barrels of fluid, practically clear water, for several days. During this time, San Gabriel 2, offset to Bixby 5, had pumped about 75 barrels of oil and 150 barrels of water, which had gradually increased to 500 barrels of oil and an equal amount of water at the time repressuring was started in Bixby 5. The well then started to flow and produced as high as 3000 barrels of water and has averaged around 1800 barrels of water, while the oil production jumped up to 1300 barrels and has gradually declined to 600 barrels.

It is apparent from this that the Standard probably could not have produced more than 75 barrels from San Gabriel 2, and the Marland could not have produced any more in their Bixby 5, in addition to being troubled with large volumes of water. The sudden increase in oil production of San Gabriel 2 indicates there undoubtedly were large amounts of oil trapped in upper portions of the sand between the various wells which could not have been recovered in any way except by repressuring or the gas drive. While this large increase was made in the Standard Oil Co.'s wells through Marland efforts, it represents very little oil that Marland could have recovered, it is believed, and is further evidence of the necessity of disregarding lease lines if the maximum production of oil is to be secured by repressuring methods.

STANDARD San Gabriel 4 showed very large increases in water production subsequent to starting repressuring work, but showed no increase in oil production, which also holds true for San Gabriel 5. San Gabriel 6, offsetting Bixby 6, produced, during September, about 75 barrels of oil daily with an equal amount of water, which increased during October up to a maximum of 500 barrels of oil with an equal amount of water, with an average of around 350 barrels of oil.

Two compressor plants were built, one on the Bixby lease and one on the McGrath & Selover lease. Both plants are identical in design, except that the Bixby plant contains one high pressure machine for repressuring work and four regular machines for gas-lift work. The McGrath & Selover plant contains five machines for gas-lift work. Due to poor soil conditions ten 35 foot piles were driven for each compressor foundation and all compressor blocks tied together with two 18 by 24 inch concrete beams. The building and cooling tower foundations are supported on piles and are entirely independent from the compressor foundations. All trench walls and floors are separated from the compressor building.

The compressors are 170 H. P. Twin Coopers. The high pressure machine is a Cooper of a similar rating, with twin 4½ by 20 single-acting, high-pressure cylinders, which boost the gas from 600 pounds to 1500 pounds. The auxiliaries consist of Worthington centrifugal pumps, motor driven, with a gasoline engine driven standby and an Ingersoll-Rand motor driven booster compressor to boost the gas from 600 pounds to 1000 pounds for starting gas-lift wells, and a Worthington single stage vertical motor driven air compressor for starting air at 200 pounds.

The control room, which is partitioned off in the same building, contains two headers, one for the 600-

pound gas and one for the 1000-pound booster gas, which are manifolded together and controlled with Vogt needle valves. Westcott gas meters with Robinson orifice fittings are placed on each of the two-inch lines which leave the manifold and run to the wells. The cooling tower is a Fluor sectional tower, using Griscom-Russell bentube sections for both the jacket water and gas cooling. All lines are carried in underground trenches, there being no overhead piping whatever in the plant.

The wells are equipped with a 4-inch high pressure master valve above the head and a 3 x 4 inch cross with a welded Wye above. One side of the cross is closed off and the other side leads with a gate valve and fittings to the sump for blowing off the well and for emergency purposes. On the straight run above the Wye is a gate valve opened only when swabbing the well and the branch of the Wye leads directly up to a trap set in the derrick. This arrangement is for the purpose of eliminating frictional resistance to the flow of the well. Various types of injection foot pieces, perforated tubing and plain tubing were used with no difference noted in the results. This arrangement worked very satisfactorily for all wells except those which contained a high water content, in which case the emulsion seriously hampered the operation of the trap and the dehydration equipment.

During August, the average conditions on four Bixby sand wells and one Selover sand well, were as follows:

	Gas Input M. cu. ft.	Gross Prod.	Wet Gas M. cu. ft.	Grav.
Average	467	714	634	18.9

to one barrel of oil.

This method has recently been supplanted with the National Automatic Fluid Displacement pump which is run on a packer and functions by the fluid valve lifting and cutting off the entrance of gas while the fluid is rising in the tubing, and the fluid valve closing again when the fluid has reached approximately its static level, and in so closing, opening the gas valve, allowing the gas to force the oil from the tubing, after which the oil enters again. It was found that the time interval of these flows is from 3 to 5 minutes, depending on the depth of the tubing and that the flow intervals are exceptionally regular. This pump has served 3 purposes; namely, to increase production by eliminating the gas pressure acting on the fluid in the hole, thereby reducing the back pressure on the sand; to eliminate bad emulsions by preventing mixture of the gas and fluid, and to lower the total oil-gas ratio.

The averages for October on twelve wells were as follows:

	Gas Input M. cu. ft.	Gross Prod.	Wet Gas M. cu. ft.	Grav.
Average	340	953	557	19.3

to one barrel of oil.

Two of the wells in this group were equipped with the National Automatic Pump which materially helped to lower the oil and gas ratio. This group contains one well which had an input ratio of 2,374 cubic feet per barrel, otherwise the average ratio would have been even lower than the figures indicated.

Experience of the Marland company was that the tubing depths can not be varied at will as would seem to be indicated in many of the recent articles on gas-lift work, but that each well has a certain depth at which uniform results may be obtained. If the well is tubed deeper a heading will occur, causing a loss of production during the time pressures are building up to blow off the head, and if the well is not tubed deep enough it will have a tendency to blow through, lowering the gas efficiency. It has been found that many of the wells have different fluid levels or fluid pressures at different times of the day, these pressures raising and lowering at seemingly regular intervals for which no explanation has as yet been found. The percentages of water content also vary during different periods of the day in a similar manner and no doubt have a direct bearing on the change in pressures.

	Gas-Oil Ratio Cu. Ft./Bbl.		
% Cut	Input	Sand	Total
46.35	790	264	1054

Crouse-Hinds Company, Syracuse, N. Y., has issued folder No. 53 on "Taping and Splicing Is Easy With the New Obround Condulets" and bulletin No. 2104 on "Wedgtite Pipe Hangers."

	Casing	Gas-Oil Ratio Cu. Ft./Bbl.		
Cut	Pressure	Input	Sand	Total
40.1	42.9	357	228	585

C. C. Burr Passes Away

COLUMBUS, Ohio, Dec. 15.—Carlos C. Burr, a vice-president of Pure Oil Co. and father-in-law of Beman G. Dawes, died here Dec. 10. Mr. Burr was with the Dayton Gas Co., a Pure Oil subsidiary, from 1916 to 1922, when he moved to Columbus and became an inactive vice-president of Pure Oil. He was buried at Lincoln, Neb., where he was one-time mayor, and at one time the largest landholder in Nebraska.

The honor roll of The Texas Co.'s refining department shows the completion of 17 years of service by F. P. (Shorty) Risdon, chief engineer in the Houston office organization.

Results Observed in Repressuring Experiment

After carefully studying the results of the gas lift and repressuring work on the Marland wells in the Seal Beach field in California and in wells on adjacent properties the following conclusions regarding this method of oil recovery have been reached by their engineers:

1. The gas lift using plain tubing gives considerable trouble in wells making water, which offsets most of its advantages.

2. Trouble from gas pressure holding back pressure and from emulsions can be greatly reduced by the use of some device similar to automatic fluid displacement pumps.

3. The gas lift in general is most effective when used in conjunction with repressuring, which artificially raises the fluid levels in the wells.

4. The gas lift, when applied early in the life of the wells, will greatly reduce the oil and gas ratio, thus conserving gas for the work of moving oil into the well rather than expending it in lifting oil to the surface.

5. Repressuring is entirely practical even where very high pressures are required, provided the size of the property is sufficient and the location on the structure is such as to allow the recovery of the oil on the same property where the repressuring is done. The rate of production can be increased thereby reducing costs per barrel and the ultimate economic recovery can be increased.

6. Full co-operation of all producers in a field is necessary for the maximum benefits to be derived from repressuring work.

7. Indications are that, on large properties, repressuring can be used as a means of driving the oil upstructure to the line wells, eliminating drilling the usual number of inside wells. Even though total recovery per acre might not be as great by this method, the earnings in dollars would be greater, due to greatly reduced drilling costs. However, it will be necessary to locate wells with this program in mind before it will be possible to prove the theory. The location of the wells for the repressuring at Seal Beach was dependent on the use of wells which were small producers and were not located to the best advantage for repressuring. Even with this handicap the repressuring has shown excellent results in conjunction with the gas lift.

$30 is Cost of Effective Water Treater For Natural Gasoline Plant

By F. B. Good*

Cost is Deciding Factor

PRACTICAL methods of treating the water supply at natural gasoline plants, including the description of a cheaply constructed treater for handling turbid water, are given in this article by Mr. Good, a chemist for The Texas Co., which was read before a group meeting of plant operators at Breckinridge, Texas, recently, held under the auspices of the Natural Gasoline Association.

Various treating agents for different types of water are discussed and the point taken up as to when it is more economical to secure a new source of water supply, than to install a closed water circulating system, to treat the available supply. In any discussion of this subject the loss in efficiency of the engines, through using scale-forming water, should be given consideration.

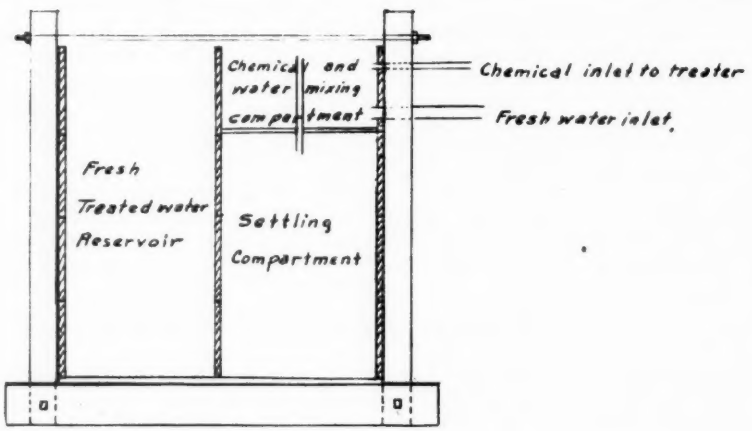
THE most efficient and economical type of water treatment for engine cooling is dependent upon the characteristics of the water, the amount of water available and its cost. Some of the waters of the southwest are so high in total solids and scale forming matter, that it is impractical and uneconomical to attempt treatment by chemical means. When a water of this character is encountered, a new supply should be located, or a closed water circulating system installed.

Zeolite is effective, where water has little or no salt in solution. Barium hydrate is another efficient treatment, the barium acting upon the sulfate of lime forming from it caustic lime and barium sulfate. The caustic lime in turn throws down the carbonate of temporary hardness; whereas by the addition of one chemical we remove both the temporary and permanent hardness, which seems to have the advantage over even the lime, soda ash treatment, as it eliminates the chances of your boiler foaming, from a concentration of sodium sulfate.

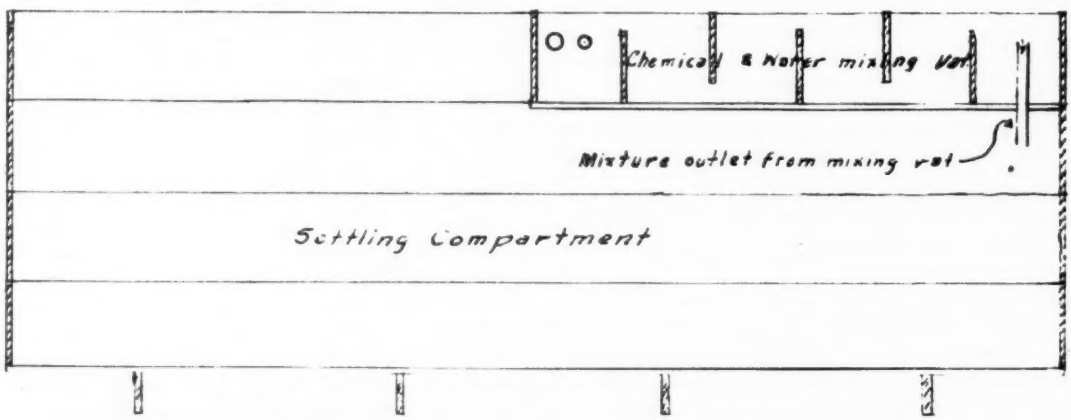
Where the turbidity is high, we should revert to the lime soda ash treatment; a treater of this type can be built for about $30 which is capable of handling 10,000 gallons of water a day. The apparatus as illustrated in Fig. 1 consists of two tanks, one 3 x 3 x 4 feet, the other 4 x 4 x 12 feet. The smaller is used for mixing the lime and soda ash into solution, it has a perforated tray extending within 8 inches from the top. A jet of water is directed upward against the bottom of this tray, this dissolving the chemical, which in turn flows into the effluent tank.

The second tank which is 4 x 4 x 12 feet, is divided into 4 compartments by partitions, each compartment being 2 x 4 x 6 feet. The first compartment of this tank has a series of baffles for the intimate mixing of

*Chemist, The Texas Co.



End view of treating tank



Treating tank showing baffles for mixing and settling compartment. Tank is 4 by 4 by 12 feet

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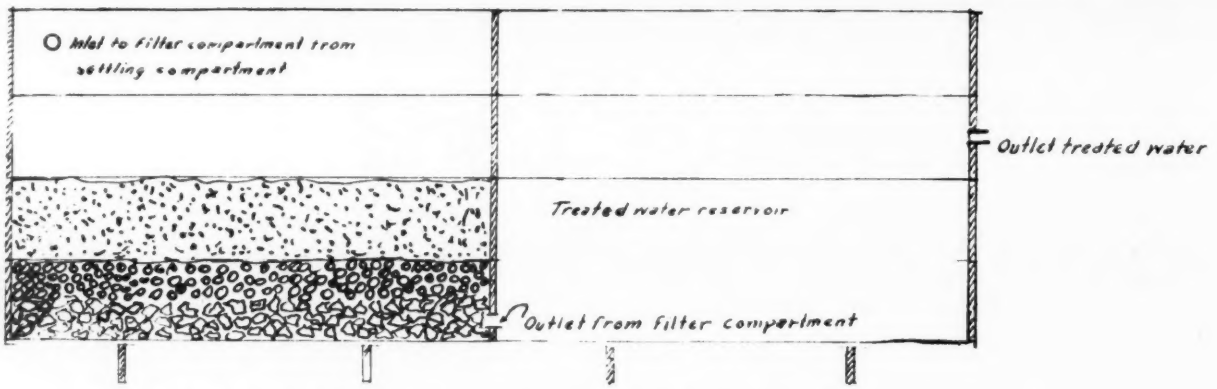
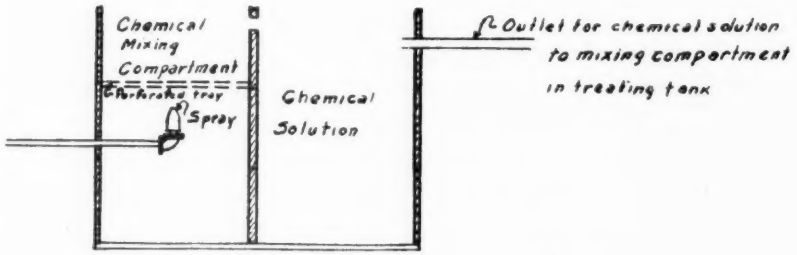

Inlet to filter compartment from settling compartment
Outlet treated water
Treated water reservoir
Outlet from filter compartment

Treating tank showing filtering compartment and treated water reservoir



Chemical mixing vat 3 by 3 by 4 feet

the chemical and water. These baffles are set upon a tray extending down 1 foot from the top of the tank. From compartment one, the water flows into settling basin through pipe in bottom of tray, here it has the entire length of the tank to settle out before entering compartment 3 or filter, this filter is composed of rock, gravel and sand; rock 6 inches, gravel 6 inches and 1 foot of sand; from compartment 3 it enters from the bottom into compartment 4 as fully treated water, ready for the hot well or over your engine jackets.

Scale which is formed in boilers varies from 1/64-inch to 2 or 3 inches in thickness. These scales also vary in appearance, some being light and very porous, others, which are formed by water having a high and sulfate content, very hard and difficult of removal, especially if there is very much silica in the water. The heat transfer on the shell and flues of a horizontal return tubular boiler or in the water tubes and drums of water tube boilers, is very much retarded, as this scale acts as an insulating material. Various estimates have been made regarding the loss, some out of all proportions, some go as high as 75 per cent loss; several reputable engineers met and agreed that it could be safely said that one would save in fuel and boiler efficiency alone 13 per cent for every pound of scale forming matter removed from the water, and I think this a very conservative estimate.

Scale forming water is also a serious matter for operators of internal combustion engines, whether gas, gasoline or oil. The heat produced by explosion within the cylinder is transferred to the engine cooling water in the head and jacket and if a layer of scale forms on the metal walls of the cylinder, the heat transfer is reduced, which results in an increased consumption of lubricating oil, higher exhaust temperature in the combustion space and manifolds and frequent breakage of gas engine heads, cracked pistons and rings.

There is one company, which operates more than 200 gas engines in compressor service in this field and obtaining as high as 18,000 horsepower hours per gallon of oil with clean engines against 8,000 horsepower hours, with engines which are badly scaled.

Another source of trouble with water in the operation of internal combustion engines, is due to corrosion which takes place in the water lines, liners of power cylinders and exhaust manifolds. This corrosion is usually due to dissolved oxygen, free carbonic acid, magnesium chloride or calcium chloride in combination with magnesium sulfate. Many engines are run in what is termed wet condition, that is, a small amount of water is injected into the cylinders at the time of the explosion. The purpose of this water is to insure perfect combustion, but if the gas used contains an appreciable amount of sulfur compounds, we will find that the water combines with the oxidation of sulfur under proper pressure and temperature conditions to form sulfuric acid, which breaks the film of lubrication and causes pitting of the engine cylinder.

Mechanical devices are known as "De-Aerators" and operate on the principle of heating water under a vacuum, which causes the dissolved gases to be removed. Companies using these devices, claim that they are successful and that they remove dissolved oxygen and free carbonic acid, which have proved most objectionable by causing pitting of tubes and steam lines. Carbonic acid can also be removed with a spray system which aerates the water. Another mechanical device which is coming into considerable use is a mechanical steam separator installed either internally or outside the boiler, which has for its purpose the removal of small droplets of water, mineral matter and other impurities which ordinarily are carried out of the boiler by the stream of steam.

Next to the external softening of water comes the internal treatment. Just as a man suffering from indigestion will run to the drug store and buy a bottle of patent medicine, the operator of an isolated plant who is having scale trouble will buy water compounds. These compounds for internal treatment are ordinary combinations of sodium salts and tannic acid, silicate of soda fortified with caustic, soda ash or tri-sodium phosphate, organic material such as starches, gums and extracts in combinations with sodas, which have for their purpose the converting of crystalline scale forming matter into a colloidal state.

Following are methods which will be found effective in testing plant water supply to ascertain what treating methods will be desirable:

Calcium Carbonate: To test for calcium carbonate, pour water to be tested into ordinary water glass, add a little ammonia then a little ammonium oxalate; heat to boiling point, if calcium carbonate is present a white precipitate will form.

Calcium Sulfate: To test for calcium sulfate, pour water into a glass, add a few drops of hydrochloric acid (muriatic acid) and a small amount of barium chloride, heat slowly; if a

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white precipitate is formed which will not redissolve when nitric acid is added, calcium sulphate is present.

Organic Matter: To test for organic matter, add a few drops of sulfuric acid to a glass of water, to this add enough potassium permanganate solution to cause a permanent faint rose color. If this solution retains its color after standing a few hours no organic matter is present.

Corrosion Test: To test for corrosion, take a glass of water and a few drops of methyl-orange. If the sample is corrosive, upon the addition of a few drops of methyl-orange water will have a pink coloration (salmon red). If harmless and not corrosive, it will be yellow.

Mechanical Suspension: To test for mechanical suspension, stand glass of water in a quiet place for 24 hours. If no sediment is formed in the bottom of the glass, there is no mechanical suspension.

Calculation

Suppose that a water has an alkalinity of 73 parts per million and the operator desires to reduce this to 60 parts P. M. How much lime will be required to accomplish, by test there has not been found any free carbonic acid or mono-carbonate alkalinity. While it is not possible to learn from the alkalinity test how much of it is composed of magnesium carbonate or sodium carbonate, but if the hardness is known to be in excess of the alkalinity no sodium carbonate can be present. Then we can safely use enough lime to eliminate the 13 parts P. M. of alkalinity.

Calcium bi-carbonate plus calcium hydrate equals 2 calcium carbonate plus 2 water. Substituting the molecular formula or chemical weights for the formula we find 162.1 plus 74.1 = 2 (100.1) plus 2 (18) or 162.1 plus 74.1 = 200.2 plus 36. The equation is thus proven mathematically and chemically correct.

One part of alkalinity however, does not represent 1 part of calcium carbonate, but 1 part of calcium mono-carbonate; in the form of calcium bi-carbonate, and by reactions we find calcium carbonate plus carbonic acid plus water equals calcium bi-carbonate and conversely calcium bi-carbonate must equal calcium carbonate plus carbonic acid plus water then we can make this equation read calcium carbonate plus carbonic acid plus water plus calcium hydrate = 2 calcium carbonate plus 2 water. Substituting the molecular weight we have 100.0 plus 44.0 plus 18.0 plus 74.1 = 2 (100.1) plus 2 (18.0) or 100.1 plus 44 plus 18.0 plus 74.1 = 200.2 plus 36.0 or 236.2 = 200.2 plus 36.0 or 236.2 = 236.2

As each part of alkalinity does not represent one part of calcium mono-carbonate, and as the preceding equation employs a formula wherein the calcium bi-carbonate is reduced to its mono-carbonate form, it is readily seen that 100.1 parts of alkalinity will require 74.1 parts of lime or calcium hydrate to reduce 162.1 parts of bi-carbonate to the mono-carbonate form or insoluble state. Therefore 1 part of alkalinity will require as much lime as 100.1 is to 74.1 as 100 is to X = .7402. Now if 1 part of alkalinity requires .7402, 13 parts will require 13 x .7402 = 9.62 parts per gallon. To convert into grains per gallon multiply by .0584.

Lime Required: Alkalinity plus acidity (carbonic acid) times 0.56 equals lime required per thousand gallons of water.

Soda Ash: Hardness minus alkalinity times 0.093 equals soda required per thousand gallons. Hardness minus alkalinity equals deficiency of soda ash. Alkalinity minus hardness equals excess of soda ash. Alkalinity minus causticity equals deficiency of lime and causticity minus alkalinity equals excess of lime.

Auto Output is Placed On Moderate Basis

NEW YORK, Dec. 17.—Automotive Industries this week said:

Except for the automobile companies that are starting production on new models, factory schedules are on a very moderate basis, a situation that may be expected to endure for some time. The normal seasonal slump in buying has been accentuated this year by a number of unusual factors, not the least of which is the introduction of the new Ford.

Automotive executives generally expected that business would be light until the national automobile shows are held. By that time the public will be fully cognizant of the offerings for 1928 and a widespread uncertainty that still exists will be cleared up.

Ordinance Case Date Not Set

CLEVELAND, Dec. 15.—Date has not been set as yet for hearing in U. S. District court of the case in which Standard Oil Co. of Ohio attacks the validity of the Piqua, O., ordinance requiring the posting of gasoline specifications on the pump or other dispensing outlet. The case comes up in Dayton in U. S. District court, southern district of Ohio, western division. Judge Hickenlooper of the case will give attorneys a week's notice before calling the case which is expected to come up early next year.

Indiana Truck Has Export Manager

MARION, Ind., Dec. 15.—Herbert H. Swiss, formerly export manager for several truck companies, has been appointed to this position with the Indiana Truck Corp. here. The export truck department will be handled from the factory.

Christmas—
Season of happiness—good will.
NEW YEAR—time of reflection and hope.
* * * *
To our many friends and to all of those who have helped to make the past year of business a pleasant and memorable one, we wish to extend the season's greetings,—to express our thanks for the many favors accorded us and to broadcast our feelings of confidence in a bright and prosperous 1928.
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DETROIT:
5459 Grand River Avenue
ST. LOUIS:
1621 Pine Street
KANSAS CITY:
13th Street and Eastern Ave.
CHICAGO:
1213 W. Washington Blvd.
SAN ANTONIO:
1401 South Flores Street
HOUSTON:
700 N. San Jacinto Street
EL PASO:
1020 East Overland Street
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Plugging Back Wilcox Wells Uncertain of Success

Staff Special
TULSA, Dec. 17

THE failure of several wells in the Earlsboro field to produce from the Wilcox sand has caused some operators to plug back to the Earlsboro sand at around 3500 feet in an effort to produce enough oil from this formation to salvage their investment in the hole. The increasing encroachment of water in this district probably will force abandonment of many wells now producing in the Wilcox, and the next few months may see some of these wells plugged back to the upper horizon.

The ease with which plugging back is accomplished is dependent on the relative position of the 8-inch casing seat to the Earlsboro pay. In wells where the 8-inch is set above the Earlsboro the process is not complicated. If, however, the Earlsboro was drilled with rotary tools and the 8-inch set through it, the problem of admitting the oil from this sand into the hole may give trouble.

The usual method of plugging back is to cement off the water in the Wilcox, fill the hole with crushed stone to a point below the Earlsboro sand, and cap it with a limit plug. If there is room for a shot between the 8-inch casing seat and the sand the problem then becomes a matter of ordinary production methods.

The difficulties presented in a well where the Earlsboro sand has been cased off are more complicated. The oil sand probably has not only been cased off, but has perhaps been pretty thoroughly plastered with rotary mud. After the plug has been set the casing must be ripped, either at the sand level or above it, and by using a whipstock, a new hole drilled through the side of the pipe.

In the Barnsdall Oil Co. No. 1, M. Davis, the 8-inch pipe was set at 3435 feet and the hole completed with standard tools from that depth. Water was encountered in the Wilcox at 4324 feet. This was cemented and the hole filled with stone up to 3600 feet. On Feb. 10 the well was shot with 10 quarts, having an initial production of 349 barrels per day in the Earlsboro, which has declined to about 75 barrels at present.

In the same operators' No. 1, Clara Cudjo, practically the same conditions were encountered except that the 8-inch was set too close to the sand to permit shooting. The well was put on the pump, making about 30 barrels a day. Later it was decided that part of the sand was cased off and 8 feet of the first joint, 20 feet of the second and 10 feet of the third joint of pipe above the casing seat were ripped. The additional sand exposed raised the production to 149 barrels per day.

In the Independent Oil & Gas Co. No. 3, Molly Gaines, there is an excellent example of what may be encountered when the 8-inch is set through the Earlsboro. So much trouble was experienced with rotary mud after the casing was ripped it was decided to drill a new hole through the pipe to the sand. This is now being attempted by means of a whipstock set above the sand. To date this has not met with much success, but this well is being watched by other operators in the field who may experience similar conditions.

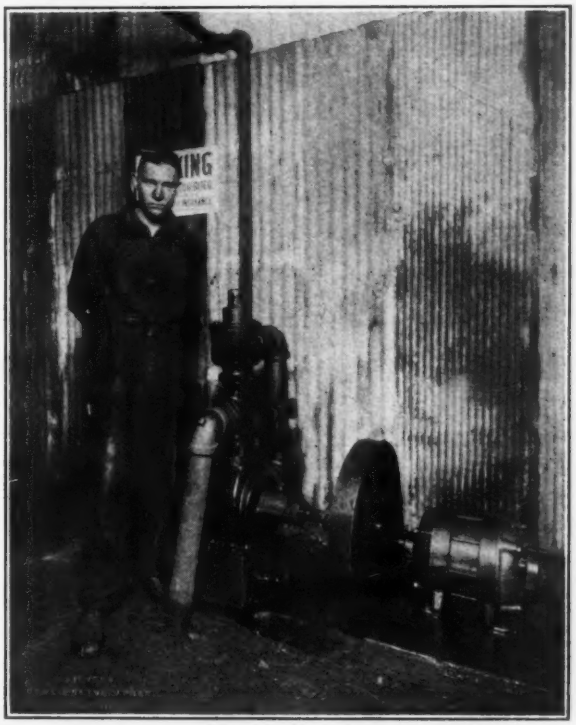
Whatever the outcome of this plugging back, each well is bound to be an experiment in itself, and a costly one at that. It is considered doubtful if many wells will prove sufficiently productive in the Earlsboro sand to justify the expense and the development of the Earlsboro sand will be by drilling new wells in such areas as the showing in wells drilled to the Wilcox justifies Earlsboro sand drilling.

Brigham Holds Annual Luncheon

CHICAGO, Dec. 15.—H. H. Brigham, president of the North American Car Corp., had his annual luncheon Dec. 9 at the Union League club here for officers and executives of the companies. Among those present were C. W. Folds, director; V. H. Smith, vice-president, Tulsa; E. D. Brigham, superintendent of equipment; W. E. Strohmeyer, accountant; R. W. Patterson, district manager, Dallas; G. M. Brigham, Tulsa district manager; G. A. Johnson, treasurer, all of the North American Car Corporation; Erwin R. Brigham, president, and I. V. Edgerton and O. L. Manning, vice-presidents of the Palace Poultry Car Co.; C. O. Frisbie, president and A. W. Peterson, secretary and treasurer of the Commerce Petroleum Co.

The Kelly Co., Chicago, is putting on the market a gate valve designed by P. J. Kelly called the Neway gate valve which is said to embody 18 revolutionary principles of design. The chief features claimed for it are: Self-cleaning seats; positive valve disk protection when open; elimination of pockets; use of replaceable inserts and seats and the adaptability of a standard body design to any type of service by the use of the proper insert—screw, hub flange or spigot.

THIS BLACKMER UNIT HAS PUMPED 20 MILLION GALLONS OF 28-30 FUEL OIL.



The Blackmer Single Electric Unit at the Fuel Oil Co., in St. Louis, Mo.

INSTALLED at the Fuel Oil Co., St. Louis, Mo., the Blackmer Electric Unit illustrated unloads Fuel Oil from the tank cars and pumps it through 200 feet of horizontal 3" pipe and thence vertically 25 feet to the storage tanks.

It is estimated that the pump has handled 20 million gallons of Fuel Oil. It is seldom that heat is applied to the oil. No repairs have been made on the pump. The motor was badly damaged in a disastrous fire, but the pump came through unscathed.

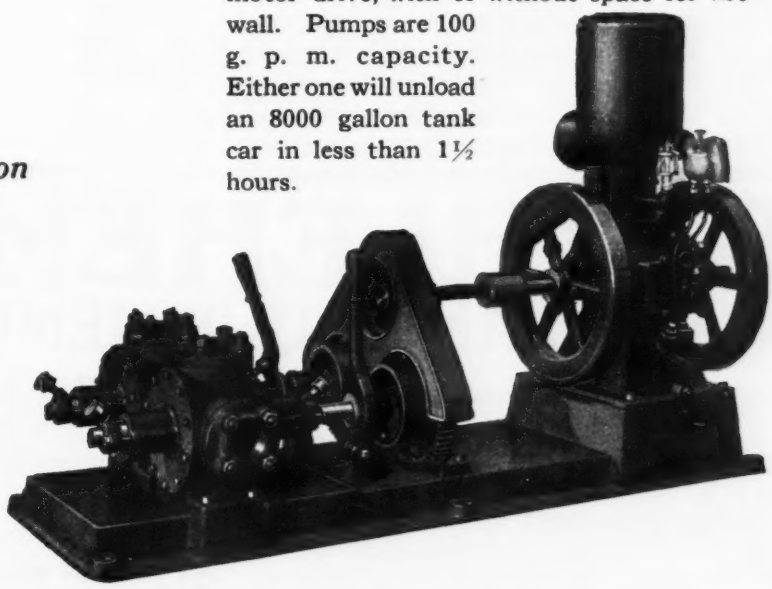
And again we say—"More Gallons per Dollar" is not a slogan. It's a fact.

Ask for any information that you desire

Blackmer Oil Jobber's Unloading Unit.

Pictured below is the New Blackmer O. J. Unit designed especially for oil jobber's service. Due to greatly increased production, we are able to sell this unloading unit at a reduced price.

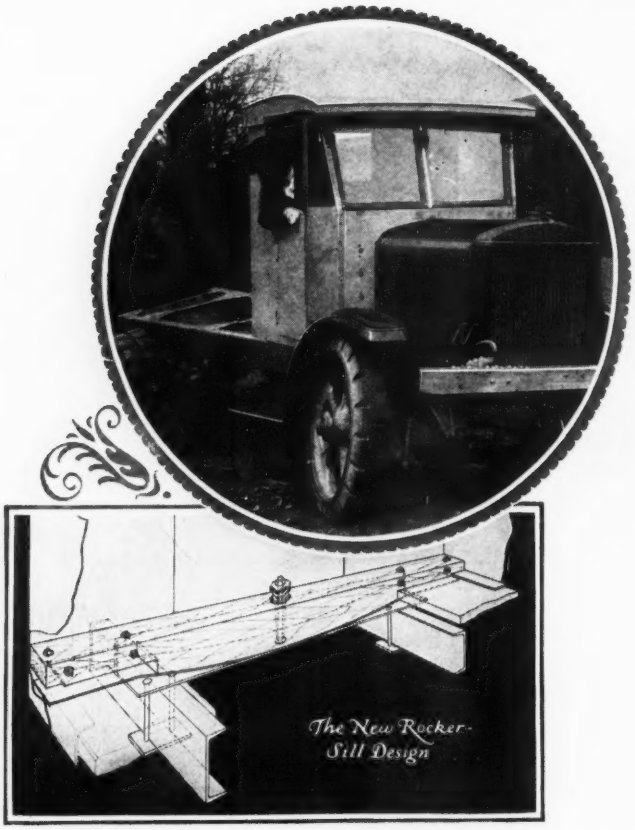
It is furnished with gas engine or electric motor drive, with or without space for firewall. Pumps are 100 g. p. m. capacity. Either one will unload an 8000 gallon tank car in less than 1½ hours.



Blackmer Pump Co.

1809 Century Ave.

Grand Rapids, Michigan



Takes Wear and Tear off Driver and Cab

WITH this Rocker Sill Mounting, a patented and exclusive Highland feature, there is no twisting and swaying of the cab, no wear and tear on the driver.

The rear sill is mounted on a rocker and rests at the center on an angle iron bolted rigidly to the side members of the chassis. In front, the cab is bolted rigidly to the dash. Even in the roughest going as into a gravel pit or in construction work the cab always rides on an even keel with the radiator.

Everything that goes into the construction of a Highland Cab is of the highest order. The roof, of heavy gage, one-piece sheet steel and 3-ply wood panel, is built to withstand the hardest usage. Extra heavy upholstery covers padded springs on steel frames. Doors follow the best passenger car construction. There are many other unique features.

Highland Cabs are manufactured in several models and can be mounted on any truck chassis. Write today for information.

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ROCKER SILL MOUNTING

(See the Highland Cab at the Road Show in Cleveland, January 9th to 13th.)

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Filter Presses ***Wax Moulding Presses***
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"STACTOOL" No. 253,131. Bodie-Hoover Petroleum Corp., Chicago, Ill. For lubricating oils and greases.

"V" No. 254,436. Viking Gasoline Corp., Charleston, W. Va. For gasoline, extracted, blended, and compounded.

"HI-RATIO" written on a clack circle in association with the letter "V" No. 254,734. The Vickers Petroleum Co., Wichita, Kans. For gasoline.

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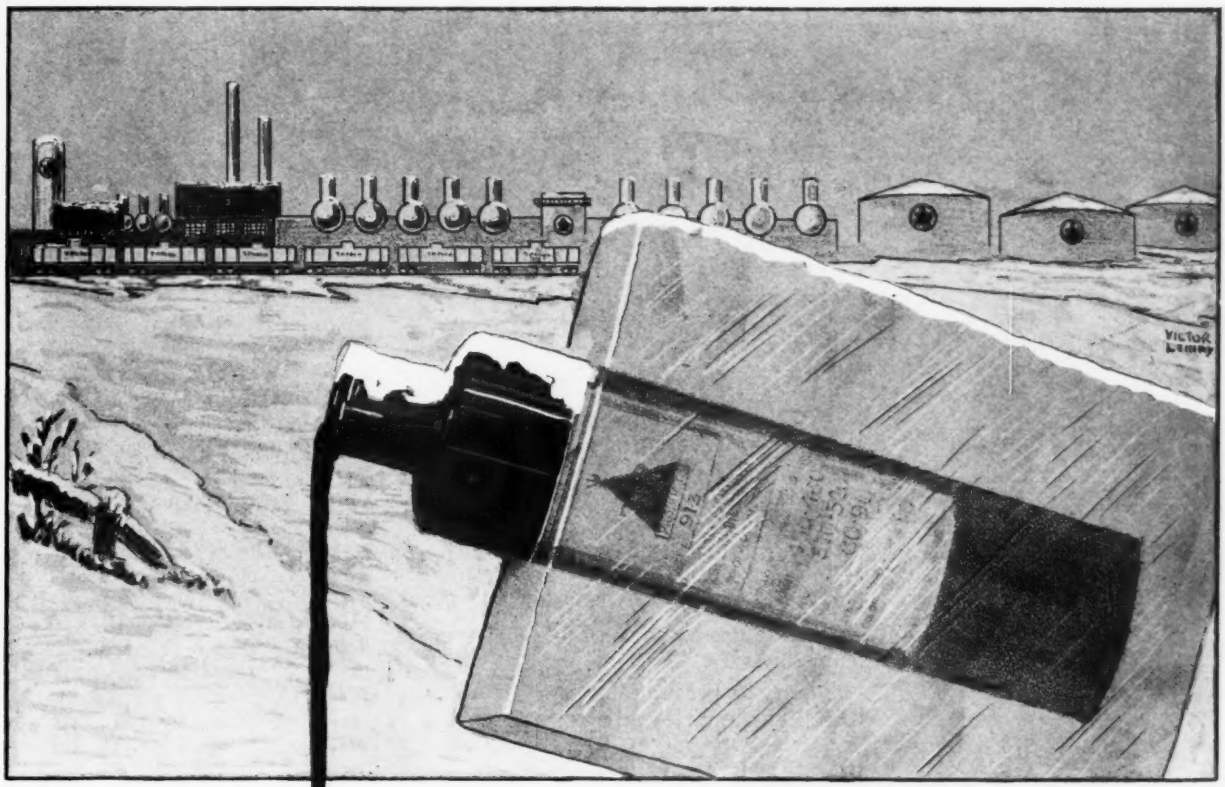
Book Reviews

Progress in the manufacture of lubricating greases from the days when crude mineral oil and rosin oils were mixed by hand in a kettle over an open fire to the present day when steam jacketed, mechanically stirred kettles, sometimes under pressure, are used, is traced in a new book, "Lubricating Greases," by G. N. Klemgard. The book contains practical and scientific information on the manufacture and use of lubricating greases.

It is intended to be useful to grease makers, refinery executives, research chemists, oil company salesmen, and mill and factory operating men. The book includes the chemical analyses of many lubricants, abstracts of patents bearing on the subject and practical processes of grease manufacture.

The work is particularly valuable because there are very few books that deal with the subject in an up-to-date way. Information as to grease making processes is usually hard to get, as such information is generally closely guarded as trade secrets.



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Reduces Blending Costs
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T&P Low Cold Test Blending Bright stocks are getting these results for a rapidly growing list of prominent Jobbers and Blenders.

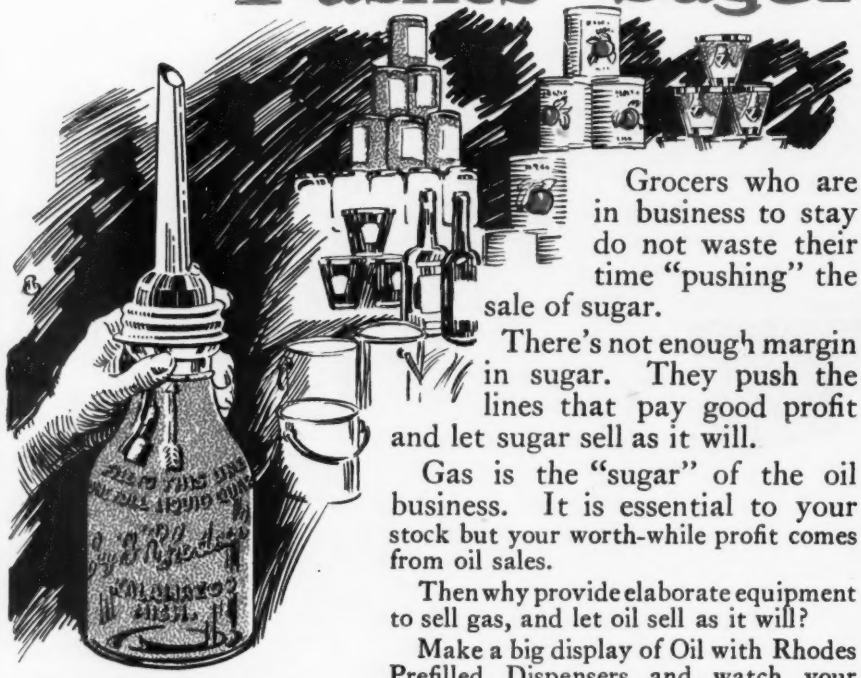
These products are from our own supply of 100% Pure Ranger Paraffin Crude—*run direct from the stills and contain all the hydrocarbons in an uninterrupted chain.* They are contact filtered and Sharples Super-Centrifuge de Waxed.

A comparison of specifications, samples and prices will tell you *how* and *why* you should place your order immediately.

913		915	
Gravity	23-25	Gravity	23-25
Flash	450-460	Flash	490-500
Fire	510-520	Fire	565-575
Vis. @ 210	80-90	Vis. @ 210	120-130
Cold Test	10-20	Cold Test	10-20
Color	6-7 N P A	Color	7-7½ N P A
Carbon Res.	Under 1.5%	Carbon Res.	Under 1.5%

TEXAS PACIFIC COAL AND OIL COMPANY
FORT WORTH, TEXAS

No Grocer "Pushes" Sugar



Grocers who are in business to stay do not waste their time "pushing" the sale of sugar.

There's not enough margin in sugar. They push the lines that pay good profit and let sugar sell as it will.

Gas is the "sugar" of the oil business. It is essential to your stock but your worth-while profit comes from oil sales.

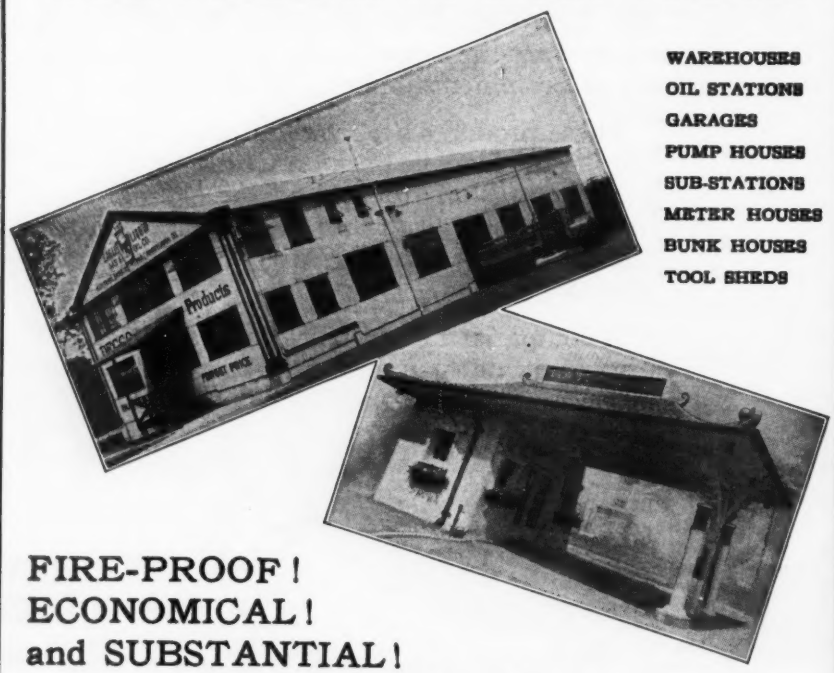
Then why provide elaborate equipment to sell gas, and let oil sell as it will?

Make a big display of Oil with Rhodes Prefilled Dispensers and watch your profits climb.

RHODES *PRE-FILLED OIL DISPENSERS*

Jay B. Rhodes Company
Kalamazoo, Michigan

STEEL BUILDINGS for EVERY PURPOSE



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Gasoline Text Book For Uninitiated

CHICAGO, Dec. 15.—The story of gasoline, told in simple, non-technical language, has recently been reduced to book form and published by the American Petroleum Institute, 250 Park Ave., New York City. The purpose of the book is for the education of oil company employes who come in contact with the consuming public, filling station men and tank wagon drivers who sell, and the public as well. The name of the book is "What Makes the Old Bus Go?"

The book contains 32 pages, is bound in a strong paper cover, gold and black color combination, 7¼ x 5 inches. In it, 65 ordinary questions are answered. They are just such questions as any uninformed customer of a filling station might ask the man who serves him. A great many salesmen might know the right answer to some of these questions, at least to their own satisfaction, but would be unable to express their thoughts to the entire satisfaction of the inquirer. Here are some of the questions:

What is good gasoline?
What is anti-knock gasoline?
Is gasoline dangerous?
Is all crude oil alike?
What is the "tank wagon" price?
What would a pound of gasoline cost?
Why do gasoline prices fluctuate?
How is crude oil found?
What is cracking?
How deep is an oil well?
Is there an oil monopoly?

Trell Yocum of the A.P.I. staff started the movement that resulted in the issuance of the book. The idea developed on a summer motor tour and to get the right perspective he worked for a few days at a filling station last summer. He says however, that an ordinary room would not hold the men who participated in the work of editing the book.

After the manuscript was all written it was submitted to the technical departments of several oil companies. They suggested certain changes to have the information in the book absolutely correct to data and clear.

The books may be obtained from the Institute in lots as low as 500. Buying 500 at a time the price is $65 a thousand and it reduces to $35.75 a thousand in lots of 50,000 and above. Persons who wish to reprint the book themselves instead of buying them may do so by purchasing the 64 plates (two for each page) at a cost of $125. Companies buying the books may have the back cover printed to suit themselves for a slight additional charge.

a perfect oil for blending

HIGH FLASH . . . . LOW COLD TEST
HIGH FIRE . PERFECT DEMULSIBILITY
PALE COLOR . LOWEST CARBON CONTENT
VISCOSITY 80-90 at 210° F . PRICED RIGHT

WITH this remarkable new product and a 150 or 200 Vis. Neutral Oil you can *blend your own oils* of *high quality* and *any viscosity* EASILY, AT A REAL SAVING and WITH GREATER PROFIT

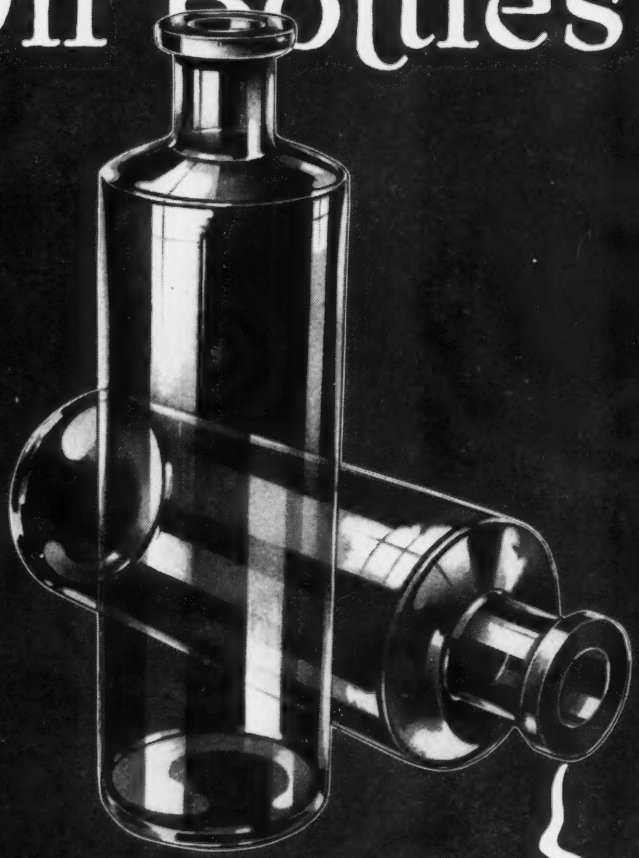
. . . because you only need two large storage tanks; you buy in tank car lots at tank car prices; you save tankage and storage space; your capital investment is smaller and your turnover is quicker.

WRITE *for Booklet, Mixing Charts and full particulars*

SUN OIL COMPANY
PHILADELPHIA

No. 96 GOLDEN
VISCOSITY 80-90 AT 210° F.

Sample
Oil Bottles



Good looks are really a mark of better service in sample oil bottles —

WE USE the finest perfume bottle glass not for appearance alone, but to guarantee freedom from distortion and to assure true color analysis of samples. Ground and polished bottoms, squared shoulder, sturdy accurate lips and finish—these things, while they add distinctive appearance to our bottles, actually make them more serviceable for your needs.

Sizes 2 - 4 - 8 oz. Samples on request.

Illinois Glass Company · Alton Ill.
ESTABLISHED 1873

New Patents

Dec. 6

REFINING

Baffle Tower.—Clive M. Alexander, Tulsa, Okla. Filed May 9, 1925. No. 1,651,354.

Apparatus for Recovering the Volatile Products from Carbonaceous Material—Milton J. Trumble, Alhambra, Calif. Filed July 11, 1922. No. 1,651,647.

PRODUCTION

Well Swab—Theadore H. Wobermin, Whittier, Calif. Filed Jan. 3, 1927. No. 1,651,497.

Controlling Apparatus for Oil Wells—Gustavus A. Montgomery, Titusville, Pa., and Dennis L. Driscoll, Alhambra, Calif., assignors to Titusville Forge Co., Titusville, Pa. Filed Aug. 28, 1924. No. 1,651,537.

Crown-Block Bearing for Oil Wells—Walter G. Black, Whittier, Calif., assignor to Emsco Derrick & Equipment Co., Los Angeles, Calif. Filed May 11, 1921. No. 1,651,663.

Fishing Tool—Ervin L. Boettler, Sapulpa, Okla. Filed Feb. 27, 1926. No. 1,651,803.

Rotary Disk Drill—William Jennings Wilson, Southgate, and Allan J. Carlton, Huntington Park, Calif., assignors to U. S. Tool Co., Long Beach, Calif. Filed Aug. 24, 1925. No. 1,651,859.

Band-Wheel Counterbalance—Richard R. Bloss, Columbus, Ohio, assignor to The International Derrick & Equipment Co., Columbus, Ohio. Filed June 7, 1926. No. 1,651,944.

Separating Apparatus for Wells—Claudius H. M. Roberts, St. Louis, Mo., assignor to Wm. S. Barnickel & Co., Webster Grove, Mo. Filed March 18, 1928. No. 1,651,968.

Adjustable Bearing Plate for Wireline Pumping Jacks—James R. Robb, Oilton, Okla. Filed March 15, 1927. No. 1,652,048.

Well-Drilling Apparatus—Clarence L. Skinner, Crompton, Calif., assignor to Hubert Barnett, San Quentin, Calif., and Henry Lybeck, Alameda, Calif. Filed June 4, 1926. No. 1,652,059.

MISCELLANEOUS

Refrigeration—Maurice B. Cooke, Plainfield N. J., assignor to The M. W. Kellogg Company. Filed April 10, 1926. No. 1,651,513.

Process of Reclaiming Waste Lubricating Mineral Oil Containing Soaps—Hans A. Frasch, New York City. Filed June 27, 1921. No. 1,651,688.

Means for Preventing Detonation and Decreasing Variations in Spark Timing—Harry L. Horning, Waukesha, Wis. Filed Nov. 24, 1924. No. 1,652,122.

Jenkins Bros. Official Dies

NEW YORK, Dec. 15.—William Byron Rufe, secretary of Jenkins Bros. with headquarters here, and also secretary of Jenkins Bros., Ltd., the Canadian branch of the company, died Nov. 27 at Brooklyn, N. Y.

Mr. Rufe was born in Lehigh county, Pa., 56 years ago. When he was 15, he went to New York where he was employed by Jenkins Bros. as their first stenographer. He became secretary on the company's incorporation in 1907, and in January, 1928 would have completed 40 years of service.

PROBLEMS FACING THE INDEPENDENT FILLING STATION — No. 6

YESTERDAY

TO-DAY

Can you sell to women the same way you sell to men?

You need go no further than your own curb to find out how many women are driving automobiles today.

Many of these women are buying oil and gas for the family car.

How does selling to women differ from selling to men? Neatness of your stations is important, of course. Are there any other factors to keep in mind?

In our nation-wide study of filling station operation we have found some interesting information on this subject. Part of it may duplicate what you already know. But some of it may be new to you or at least suggest new ways to increase your sales to women drivers.

We suggest that you talk with our Filling Station Specialist. He won't come to try and *tell* you how you should run your business. We don't claim, and we know he cannot solve all your difficulties. But, he will gladly discuss your problems. His ideas plus your experiences may result in some constructive suggestions.

A card to our nearest branch office or a word to the regular Mobiloil salesman will bring him.

A point worth following up

If there is one thing that the woman driver is anxious to avoid it is engine trouble. Gargoyle Mobiloil interests her because she knows it is dependable. Lindbergh proved it with Mobiloil. So did the Hawaiian Fliers and the Round-the-World Fliers and scores of others.

Furthermore she likes the Mobiloil Chart. It assures her of the correct oil every time she buys. You will be surprised how easily Mobiloil can be sold to the women drivers.

To make worthwhile profits you must know the answers to these questions

1. How can you meet today's competition?
2. How can you cut down the number of slack hours?
3. How can you better please your customers?
4. What makes customers come back?
5. What makes transients stop?
6. What makes woman drivers buy?
7. What makes the farmer buy?
8. How can you compete successfully with big refiners?
9. Which brings most profits—"private" brands, "public" brands, or both?
10. How can you make larger sales to each motorist?
11. How should you locate new stations?
12. What type of station should you erect?

GARGOYLE

Mobiloil

Make the chart your guide

VACUUM OIL COMPANY MAIN BRANCHES: *New York, Chicago, Philadelphia, Boston, Buffalo, Detroit, Pittsburgh, Minneapolis, St. Louis, Kansas City, Dallas*

Other branches and distributing warehouses throughout the country

Our Industry — A Page of Facts and Personalities

National Petroleum News

By Paul Wagner

OBSERVERS in the United States will await with interest the outcome of efforts of American operators to consolidate their properties in the Tampico district of Mexico. Work of making appraisals is proceeding with the end in view of reaching some common ground that would permit pooling of interests under a single operating management.

Advices from Mexico City quote the Spanish language newspaper, "El Universal," as saying a contemplated petroleum trust is being formed in that country by the Standard Oil Co. of Indiana, through its subsidiaries, the Pan American Petroleum & Transport Co., the Mexican Petroleum Co., and the Huasteca Petroleum Co. Besides the companies mentioned, "El Universal" says the consolidation would include the properties in Mexico of the Transcontinental Petroleum Co., subsidiary of the Standard Oil Co. of New Jersey; East Coast Oil Co. of Mexico, S. A., subsidiary of the Southern Pacific railroad; the Mexican Gulf Oil Co., subsidiary of the Gulf Oil Corp., and others.

No confirmation is to be had in the United States of the progress consolidation, but it is known that some of the companies mentioned are actually at work on details of such a consolidation plan.

Should the proposal succeed in agreement between the interested companies, then the machinery of administration would have to be worked out. This could be accomplished by the setting up of a percentage-owned company, functioning through an administrative board representing each of the subscribing operating interests, or through some other system found mutually satisfactory.

The proposal involves a large amount of preliminary work before getting down to cases, and then a considerable detail will have to be gone over before final agreement can be reached. What the outcome will be none can say now; however, the situation will be found interesting to watch.

* * *

JOHN J. BIRD of Shreveport writes the Houston office of NATIONAL PETROLEUM NEWS to say he is now representing the J. H. McEvoy Co., in his territory, selling oil well screen and other equipment. "When I say selling, boy, I am," Bird writes.

W. A. MONCRIEF

W. A. MONCRIEF, in addition to his duties as executive vice president of Marland Oil Co. of Texas, with Fort Worth headquarters, is chairman of the Pecos County Prorating Committee, which has charge of the allocation of market outlet from the Yates field.

Mr. Moncrief, who is widely known in the southwestern petroleum industry, has been identified with the Marland organization for several years; moving to Texas from Oklahoma soon after his company first began operating in the state.

* * *

DIRECTORS elected at the annual stockholders meeting of the Houston Gulf Gas Co., include six new members of the board, as follows: E. L. Phillips, Frank F. Stoltz, George W. Olmstead, R. F. Van Doorn, Henry R. Frost and E. G. Connette. Old directors re-elected include O. R. Seagraves, W. L. Moody, Jr., James A. Elkins, C. B. Ewart and B. E. Hettler.

* * *

C. C. BROWN, general production executive of the Marland interests and president of the Kay County Gas Co., which handles Marland crude oil purchases, is back at Ponca City, Okla., improved in health, after a summer and fall period in California.

THE Tom S. Hogan interests of Denver do not limit their oil country operations to field development. They include the acquisition of real estate and the construction of office buildings in their operations. Latest plans call for a petroleum building at Midland, Texas, which is to be 10 stories high, or more, depending on the floor space required by tenants.

* * *

O. L. ZUVER of the Richmond refinery of the Standard Oil Co. of California builds radio sets as his spare-time hobby. He recently completed his 270th.

* * *

N. E. TANNER, recently head of the land and scouting departments of Humble Oil & Refining Co., in the west Texas district, will operate independently at San Angelo since his resignation. Tanner is widely known as vice president of the National Oil Scouts of America.

* * *

LUCIEN POWELL, district manager in South Texas of the International Derrick & Equipment Co., and Miss Maud Michaux of Houston, were married Dec. 1, last, after which they hied away on their honeymoon to an unannounced place.

* * *

J. EMERSON BUCY, driller in the Rising Star, Texas, district for the Louisiana Oil Refining Corp., has been transferred to the Allen, Okla., territory; J. V. Palmer of the general office producing department at Shreveport, also has been transferred to the Allen territory.

* * *

A. J. SMITH, now geologist for the Pure Oil Co., at Amarillo, formerly was connected with the Humphreys Corp., at Houston.

* * *

T. M. PRETTYMAN and C. L. Renaud are now at Abilene, Texas, to which place they moved their offices as consulting geologists from Cisco.

* * *

THERE is nothing orthodox about the perspective in the Yates field of Pecos county, Texas. It is the exception rather than the rule to find a derrick standing over a completed well in the field. Generally, all there is to be seen identifying the presence of a well is a small control head sticking three or four feet out of the ground. The control head is screwed onto the casing of the well, which is usually surrounded by a four-foot concrete slab. Most of the completions have been made with small portable outfits, such as National and Star machines or spudding outfits.

New Stations Building

Wheeling, W. Va.—South Penn Oil Co. will build filling station.

Port Clinton, O.—J. M. Stetler is completing filling station.

Jefferson City, Mo.—Andrew Bellman will build filling station.

Peru, Neb.—H. H. and S. W. Whitfield will erect building which will contain filling station.

Hillsboro, Wis.—H. R. Knower is completing filling station.

Smithland, Ia.—M. F. Sullivan and Russell Hall will build filling station.

Geddes, S. D.—Standard Oil Co. of Indiana is completing filling station.

Cocoa, Fla.—S. F. Travis Co., Inc., is building filling station.

Dunnellon, Fla.—The Texas Co. is building service station.

Arcadia, Fla.—E. V. Nabell is erecting filling station.

New London, Conn.—Sidney Sulman will erect garage, filling station and marine filling station.

Fredonia, Kan.—B. E. LaDow is completing filling station.

Grapeland, Tex.—T. H. Leaverton will erect garage and filling station.

Cedar Rapids, Ia.—Champlin Refining Co. will build filling station.

Anahuac, Tex.—Normie Sherman will build filling station.

Washington, Ia.—Roxana Petroleum Corp. is completing filling station.

Wichita, Kan.—Five filling stations will be erected here by the Blue Diamond Filling Stations Co., according to G. D. Taylor, president.

Emporia, Kan.—Two filling stations will be built here, one by Marland Refining Co. and the other by J. M. Griffiths.

Centralia, Mo.—C. S. Allen is erecting filling station.

Los Fresnos, Tex.—W. B. Palmer will build filling station on Ocean and Arroyo Blvds.

Corpus Christi, Tex.—J. H. Mann will build filling station.

Big Spring, Tex.—Marland Refining Co. will build bulk station.

Garden City, Kan.—E. L. Elsey will erect filling station.

Houston, Tex.—J. E. Colbert is completing filling station.

Toledo, O.—William Grob will erect filling station at Glenwood Rd. and Dixie highway, at Rossford.

Alice, Tex.—Humble Oil & Refining Co., The Texas Co., and Bennett & Nayer, each have property here for filling station.

Acme Markets Benzol Blend

CHICAGO, Dec. 15.—Acme Petroleum Co. is marketing from its terminal at Riverdale, Ill., a benzol blend gasoline with a 400 end point known as Acme 4400. This premium gasoline is being sold in states neighboring the Illinois terminal. It is available in water white or red color.

No Large Cash Balance To Invite Theft

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The temptation to the hold-up man is gone when he knows your filling stations use Allison Coupon Books. They give you faster, safer service. Furnished in stock or special designs. *Send for samples and prices.*

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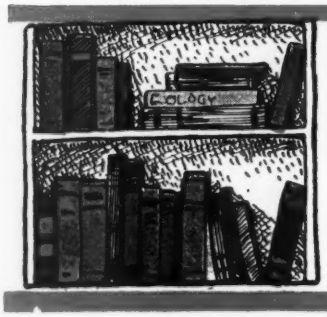

Oil Man's Bookshelf

YOUR Christmas Greetings with a good book—is a thoughtful way of remembering your friends and associates at Christmas time.

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If you don't find the book you wish below, write us at once. We have a complete list of the best books on the petroleum industry.

Send your order in at once to avoid the usual Holiday jam in the mails.

PETROLEUM TECHNOLOGY

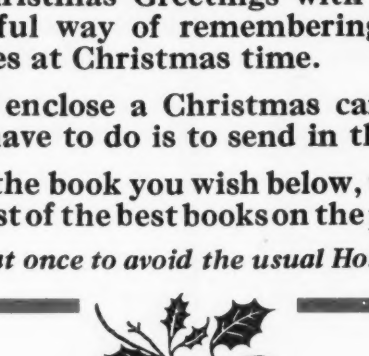
By Dr. Leo Gurwitsch

PETROLEUM TECHNOLOGY, Scientific Principles, a translation of Dr. Gurwitsch's work, "Die Wissenschaftliche Grundlagen der Erdoel Verareitung" is now available in English.

Dr. Gurwitsch is recognized as one of the leading petroleum chemists of the world. He discusses the chemistry of hydrocarbons in greater detail than can be found in any other book, as well as sulphuric acid refining and its action on the various compounds. The author's knowledge is not confined to the laboratory alone, as he has been responsible for refinery operations on an extensive scale.

The translation into English made by Harold Moore, a British petroleum technologist of recognized standing, is welcomed by the American refinery technologists who do not read German.

464 pages, 13 diagrams - Price $8



"Motor Fuels" by E. H. Leslie, Ph. D., is considered the most up-to-date work on the production of fuels.

All the cracking processes are described in detail, and some of the other subjects treated are:

The motor fuel problem; composition of petroleums; fractional distillation; fluid flow and heat-transfer; refinery equipment for distilling petroleum; towers, dephlegmators, steam-stills, condensers, heat-exchangers, coolers, and other refinery equipment; cracking processes; chemical treatment of gasoline; natural gas gasoline; gasoline specifications and quality; methods of analysis; tables.

"Motor Fuels" should be on the bookshelf of *every man engaged in the manufacture or sale of motor fuels.*

600 pages—well illustrated—$11.

RECOVERY of GASOLINE from NATURAL GAS

A glance over a few of the chapter headings indicates how thoroughly the author, George A. Burrell, goes into the subject of "Recovery of Gasoline from Natural Gas" in his new book:

Occurrence of gasoline in natural gas—Applying "vacuum" to wells—Gas leases—Chemistry and analysis of natural gas—Testing for gasoline content—Measuring—Gas carrying capacity of pipe lines—Compression method—Absorption process—Charcoal process—Extraction from Residue gas—Blending — Fractionating columns — Depletion—Removal of Hydrogen-Sulfide — Sulfur — Relation between vapor tension and distillation loss—Shipping losses—Gasoline loading apparatus — Insulating gasoline storage tanks — Accidents in transporting — Hazards in gasoline plants — Gas engines and compressors — Horse power required to compress — Steam boilers — Steam engine — Pumps used in gasoline recovery — Water cooling systems — Pipe for natural gas plants — Tanks — Regulators, relief valves, traps, thermostats, meters — Construction and operating costs of plants — Fuel economy — Depletion of properties — Other motor fuels than gasoline — Testing gasoline — etc. 590 pages, 210 illustrations, price $10

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I want the books checked below. Enclosed is check or money order for $.....

- ☐ Petroleum Technology $8
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ON THE LAZY BENCH

National Petroleum News

PETE'S MARKETGRAM

Issued Occasionally Perhaps

Dear gang:

This is wahoo time, an' wahoo means plain bull in catfish lingo. That is, at this time a year mos' folks turn to writin' somethin' nice about ol' frens, ol' books, ol' wine an' then top it off with some nice yuletide greetin' which is jest plain wahoo 90% of the time.

Personally, I don't crave much of this ol'en time stuff an' ol'en thing, particularly my women. No, sir, not even my wine, for I'm offen it, however don't get me wrong gang as my average is still not so bad. I'm jest obeyin' the doctors orders.

Swimmers for a while cluttered up the English Channel till they drove all the fish to the North Sea. Ol' man Browning, a real estate an' not cannery man as you might think, had a big time canning his Peaches. Crocks an' malt was in sech demand that we can now buy them in any hay an' feed store. The yeast business had its biggest year while thousands of enforcement constibules at a expense of millions of dollars proved to us that prohibition was a success. Fliers for a while fell so fast in both the Atlantic an' Pacific that it looked like a naval bombardment. More hi-falutin' names for the same ol' gasoline were coined than the U. S. mint turned out dimes, an' even with this better or supposed-to-be better flivver blood the market went to the Fidos and prices were cut in a thousand or more inland seaports, an' more bankers than usual got into the oil business.

Yes sir folks, it was a big year an' a lot of people will look on the world as a sad faced ol' thing, in fact, gettin' right down to the point we had much hard luck, but then we all had some fun along the line some place, an' if a bozo lives who just won't think of some fun at this season, then its high time he called in Messrs Tom and Jerry, the kinds who put the Merry in Merry Christmas.

An' lisen gang, I know a lot of you are going to call in those chaps about New Years eve even if you had your best year, an' I'm not sayin' not to, but when you get where you can't say, "the shell shocked soldiers sorts short socks," then its time to turn those chaps out and you turn in.

In conclusion we want to say that as you possibly know, this year has been lousy with National Weeks of first one kind an' another, and so far as this National Break Testin' Week is concerned we want to start some agitation to hold that only every other year, lettin' it altehnate with a National Pedestrian Week when the walkin' contingent will be taught how to jump quicker and longer, for sech as that will save a lot of rubber tires, help keep folks young an' do a heap of good in a year. The ayes have it.

Well frens who are going to get a lot of bills and trade socks and ties soon, I've been thinkin' all the time I've been staging this chin frolic of a way to spill my true sentiments at this season, and while more ideas than a jobber has troubles have flitted through my hat rack they are all as minus as a flock of zeros so far as sayin' whats really down in my heart, so I'm jest goin' to say to all, I wish for you and yours a Merry Christmas, a Happy New Year and Good Luck during 1928.

S'long,
PETE.

From
Pete Roleum, Office Boy.
Refiners Consolidated Sales Co.
Wichita, Kansas.

* * *

An Essential Executive

While on his vacation, the zoo director received the following note from his chief assistant:

"Everything all right except that the monkey seems to be pining for a companion. What shall we do until you return?"

The Loreco Diamond

* * *

"We weren't doing anything like thirty, your honor. We may have been hitting it up a little when we struck the hill, but we were down to twenty miles within two car lengths."

Next Witness—"We never went faster than fifteen miles an hour, your honor, and when we came to the cross road we slowed down to ten."

Defendant—"We were practically at a standstill when the officer came up—"

The Court—"I'll have to stop this thing now or you'll be backing into some one. Twenty-five dollars."—*American Motorist.*

* * *

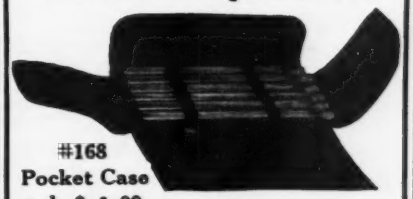
Was He Looking For Santy?

"And how did you get those black eyes?"

"I got socks for Christmas."

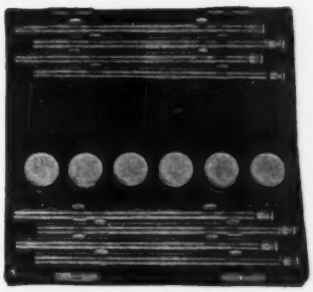
Pure Oil News

Pocket Sample Cases



#168
Pocket Case
only $4.00

Sturdily constructed from black cobra grain cowhide. Lined with red plush. Contains six bottles. 9"x3½".



175—This case contains eight 9-inch bottles and six grease jars. Made from black cobra grain cowhide, lined with red plush. Has two serviceable nickel slide catches. Price including metal capped corks, only ---------- $7.00

Less 10% for Cash
Other styles in our FREE Catalog

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Builders of Sales Luggage
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for AUTO OILS!

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Filtered through Fuller's Earth.

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Excellent for turbine and motor oil compounding.

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Assorted cars our specialty.

Whatever you want—a can or a carload—*be sure to get our prices!*

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REFINING COMPANY

Incorporated *Main Office and Refinery:* *Est. 1896*
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This SIGN will increase your gallonage

IT'S not only what this sign says that counts so much—*but what it means!*

As soon as you display this sign of the "Authorized Opaline Dealer", you sell motor oil by the commonsense method which gives motorists *correct lubrication* and maintains your PRESTIGE in SERVICE.

The Sinclair method of recommending the right grade of Opaline is a simple one—an exclusive one—and *it is correct!* It is based on the Sinclair Law of Lubrication. It provides Opaline in several grades to fit the degree of wear in a motorist's engine as indicated by the *mileage on the speedometer.*

Opaline and this method are worth knowing about—and thinking about. May we tell you about this successful method of selling *correct lubrication* with the full line of Opaline Motor Oils?

SINCLAIR REFINING COMPANY, INC.

Also Makers of Sinclair Gasoline and H-C Gasoline

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Atlanta Boston Chicago Houston Kansas City

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Refinery - Tank Wagon Markets

National Petroleum News

Exporters Help Mid-Continent Gasolines; Weather Improves Burning Oils

Staff Special
TULSA, Dec. 17

A MORE active demand for heavier oils, especially low cold test gas and fuel oil kept those commodities in the foreground of the Mid-Continent refinery market this week. Prices as a whole were steady, the few fluctuations being minor ones.

Exporters maintained their interest in the higher gravity gasolines, with a few purchases made. One export company bought half a million gallons of 64-66, 375 e. p. gasoline from an Oklahoma refiner early in the week at 6.875 cents a gallon, f. o. b. north Texas. The same export company was reported to have combed the field in north Texas for goods, and then to have entered the Oklahoma field with offers of 6.75 and 6.875 cents a gallon.

Another export company which, in the past two or three weeks has bought around 10,000,000 gallons of gasolines from various refiners in the Mid-Continent, purchased a quantity of 60-62, 390 e. p. gasoline from a Kansas refiner, the price being around 6.375 cents a gallon, f. o. b. Group 3.

An Oklahoma refiner who earlier in the month sold a large quantity of gasoline for export found that he had oversold the production of his plant considerably, and late this week bought from a Kansas refiner approximately 750,000 gallons of 60-62, 390 e. p. gasoline. The price gave a netback to the seller of around 6.4375 cents a gallon.

Still another export company representative late Friday and today was inquiring for a quantity of high gravity gasolines but no purchases had been revealed prior to close of business today.

Late last Saturday afternoon a north Texas refiner accepted an order for a quantity of 64-66, 375 e. p. gasoline for export shipment at 6.875 cents a gallon. The sale was completed too late to be listed in these columns in the issue of Dec. 14.

North Texas refiners still are reluctant to commit themselves on export gasolines for January shipment. With virtually all refiners in that district heavily booked for the remainder of December, exporters have been unable to do much business in that territory this week. Reports indicated, however, that virtually every export company in the field was showing a keen interest in the market and several were asking refiners to give them a chance on new business.

It might be interesting to note in this connection that for the first time in several months the prices at the Gulf are high enough for exporters to buy in Oklahoma and north Texas and make at least a small profit for their efforts. The price of 64-66, 375 e. p. gasoline at the Gulf today was 8.50 cents a gallon. Paying 6.875 cents, north Texas, exporters can lay the goods down at the Gulf for slightly over 7.125 cents a gallon. This leaves them between a quarter and three-eighths of a cent margin to pay their overhead and for profit. It will be recalled that most of last summer Gulf coast refiners kept their quotations so low that exporters could do little if any profitable business with Mid-Continent refiners.

THE cold weather the past two weeks has stimulated the movement of distillates and gas oil from all areas. Distillate shipments have been especially good—both on contract and spot, the low flash oils being in the best demand.

Ordinary 32-36 gravity gas oil has been plentiful in both Oklahoma and Texas, but the low cold test oils have been scarce and in exceptionally good demand. Louisiana refiners report they have had a considerably better demand for their zero straw gas oil this week, while Arkansas refiners also say their business has been good.

Fuel oil orders were improved on all grades this week a majority of refiners said. The high cold tests goods were not in nearly as active demand as the low cold test fuels. One refiner said his ordinary cold test fuel oil has been moving better this week than any week for the past month or so.

There have been some preliminary negotiation for contracts on fuel oils for next year, but few have been reported closed as yet. One refiner said he had made only one contract and that was on a flat price.

Domestic demand for 58-60 U. S. Motor gasoline and the lower gravities was exceptionally light this week, a majority of refiners said. More U. S. Motor was offered to resale agents at 5.75 cents a gallon. The bulk of sales to the trade continued to be at 6 cents, with odd cars moving both above and below this figure.

Weather conditions in much of the northern territory was unfavorable for gasoline consumption. Domestic demand was for the higher gravity goods. One refinery salesmanager whose company is active in parts of Minnesota and Iowa reported weather conditions had been unusually bad this week.

Natural gasoline markets are in much the same condition in which they have been most of the month. Grade C price today was about 3.875 cents per gallon, the lowest since the latter part of March. At that time the price was 3.75 cents a gallon. No heavy buying has been reported this month. Several manufacturers said this week there were no indications of any active business developing before the first of the year.

There is a growing tendency among manufacturers, meanwhile, to improve their products to where they can discontinue the manufacture of Grade C, which is the least desirable natural gasoline made due to its volatility, large evaporation losses in shipping and in blending. One of the larger Oklahoma-Texas manufacturers recently discontinued making the product while another has not been making it for some time. Others report they are working to the same end.

CONFLICTING reports were received late in the week regarding kerosenes. Several refiners in Oklahoma said they were having some difficulty in moving their production, and in a few places prices on both grades had been reduced fractionally. Other refiners said they found a comparative active demand for the goods.

An inquiry was circulated early

(*Continued on Page* 101)

JENKINS CRACKING PROCESS

PRODUCES QUALITY GASOLINE

Facts from performance

Without auxiliary equipment Jenkins Cracking Plants will produce maximum yield of gasoline at lowest cost from—

Crude Oil

Topped Crude

Gas Oil

Residium

GRAVER Corporation Founded 1857

EAST CHICAGO, INDIANA

NEW YORK Grand Cent. Term. | CHICAGO America Fore Bldg. | TULSA Atlas Life Bldg. | HOUSTON West Building

Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

PENNSYLVANIA	Prices Dec. 19	Prices Dec. 12	Prices Dec. 5
52-54 Naphtha	8.00 – 8.25	8.00 – 8.25	8.00 – 8.50
54-56 Naphtha	8.25 – 8.50	8.25 – 8.50	8.25 – 8.50
58-60 Gasoline	8.25 – 8.50	8.25 – 8.50	8.25 – 8.50
60-62 Str.-run gasoline	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
64-66 Str.-run gasoline	9.25 – 9.75	9.25 – 9.75	9.25 – 9.75
68-70 Str.-run gas. 350-360 e.p.	10.00 –10.25	10.00 –10.25	10.00 –10.25
OKLAHOMA			
48-50 450 e.p. naphtha	†5.875– 6.00	†5.875– 6.00	5.625– 5.875
50-52 450 e.p. naphtha	†5.875– 6.00	†5.875– 6.00	5.625– 5.875
56-58 450 e.p. gasoline	6.00	6.00	6.00
58-60 450 e.p. gasoline	6.00	6.00	6.00
56-58 U. S. Motor, 437 e.p.	††6.00	††6.00	††6.00
58-60 U. S. Motor, 437 e.p.	†6.00	6.00 – 6.125	6.00 – 6.125
60-62 437 e.p. gasoline	6.00 – 6.375	6.125– 6.375	**6.125– 6.375
60-62 400 e.p. gasoline	6.375– 6.625	6.375– 6.625	**6.375– 6.625
64-66 390 e.p. gasoline	6.75	6.75	**6.75
64-66 375 e.p. gasoline	7.00 – 7.125	7.00 – 7.125	**7.00 – 7.125
68-70 350-360 e.p. gasoline	7.125– 7.50	7.00 – 7.25	7.125– 7.25
KANSAS (F. O. B. refinery Kansas destination)			
58-60 U. S. Motor 437 e.p.	6.25 – 6.375	6.25 – 6.375	6.25 – 6.375
60-62 400 e.p. gasoline	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00
64-66 375 e.p. gasoline	7.375– 7.50	7.375– 7.50	7.375– 7.50
NORTH TEXAS			
48-52 450 e.p. naphtha	†6.00	†6.00	†6.00
56-58 450 e.p. gasoline	5.875	5.875	5.875
58-60 450 e.p. gasoline	5.875	5.875	5.875
58-60 U. S. Motor 437 e.p.	6.00	6.00	6.00
60-62 400 e.p. gasoline	6.375	6.375	6.375
64-66 390 e.p. gasoline	6.625– 6.75	6.625– 6.75	6.625
64-66 375 e.p. gasoline	6.875– 7.00	6.875– 7.00	6.875
68-70 350-360 e.p. gasoline	7.125– 7.25	7.125	7.00 – 7.125
NORTH LOUISIANA (For Louisiana and differential territory destination)			
58-60 U. S. Motor gasoline	6.50	6.50	6.50
ARKANSAS (For Arkansas intrastate shipment)			
56-58 450 e.p. gasoline	6.25	6.25	6.25
58-60 450 e.p. gasoline	6.25	6.25	6.25
58-60 U. S. Motor 437 e.p.	6.50	6.50	6.50
ARKANSAS (F. O. B. Arkansas refineries for interstate shipment)			
58-60 U. S. Motor 437 e.p.	**6.375	**6.375	**6.375
CALIFORNIA			
*54-58 U.S. Motor 437 e.p.	7.00 – 8.00	7.00 – 8.00	7.00 – 8.00
*58-61 U.S. Motor 437 e.p.	7.50 – 9.00	7.50 – 9.00	7.50 – 9.00
*42-45 Eng. dis. 445-480 e.p.	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00

*2c tax to be added if used in state.

NATURAL GASOLINE

(Note: End point of all grades, not over 375° F. Since Oct. 1, 1927 all naturals must pass corrosion test.)

OKLAHOMA			
Grade AA, 80-87.9, 90% Recovery	†4.875– 5.00	†5.125– 5.25	†5.375– 5.50
Grade A, 72-79.9, 90% Recovery	†5.25 – 5.375	†5.375– 5.50	†5.625
Grade BB, 84-92, 85% Recovery	†4.125	†4.50	†5.00
Grade B, 76-83.9, 85% Recovery	†4.125	†4.50	†5.00
Grade C, 80-92, 78% Recovery	†3.75 – 3.875	†4.125	4.50
NORTH TEXAS (F. O. B. Breckenridge)			
Grade AA, 80-87.9, 90% Recovery	†4.875– 5.00	†5.125– 5.25	†5.375– 5.50
Grade A, 72-79.9, 90% Recovery	†5.25 – 5.375	†5.375– 5.50	†5.625
Grade BB, 84-92, 85% Recovery	†4.125	†4.50	†5.00
Grade B, 76-83.9, 85% Recovery	†4.125	†4.50	†5.00
Grade C, 80-92, 78% Recovery	†3.875	†4.125	†4.50
NORTH LOUISIANA (F. O. B. Monroe District)			
Grade AA	†5.50	†5.75	†5.75
Grade BB	†5.00	†5.50	†5.50
Grade C	†4.50	†5.25	†5.25
CALIFORNIA			
75-85, 375-390 e.p. blend.	9.00 –10.00	9.00 –10.00	9.00 –10.00

MOTOR FUEL BLENDS

PENNSYLVANIA			
68-70 Blend 437 e.p.	Prices	.....	.....
64-66 Blend 437 e.p.	temporarily	.....	.....
60-62 Blend 437 e.p.	discontinued	.....	.....
OKLAHOMA			
64-66 Blend 437 e.p.	**6.00	**6.00	5.875– 6.00

BURNING OILS

PENNSYLVANIA			
45 w.w. kerosene	6.50 – 6.625	6.50 – 6.75	6.50 – 6.75
46 w.w. kerosene	6.875– 7.25	6.875– 7.25	6.875– 7.25
47 w.w. kerosene	7.25 – 7.50	7.25 – 7.50	7.25 – 7.50
OKLAHOMA			
41-43 w.w. kerosene	4.375– 4.50	4.50 – 4.625	4.50 – 4.625
42-44 w.w. kerosene	4.75 – 4.875	4.875– 5.00	5.00

	Prices Dec. 19	Prices Dec. 12	Prices Dec. 5
KANSAS (F. O. B. refinery Kansas destination)			
41-43 w.w. kerosene	4.75 – 5.25	4.75 – 5.25	4.875– 5.25
42-44 w.w. kerosene	5.625– 5.75	5.625– 5.75	5.625– 5.75
NORTH TEXAS			
40-42 w.w. kerosene	†4.25	†4.25	†4.25
41-43 w.w. kerosene	†4.375	†4.375– 4.50	†4.375– 4.50
NORTH LOUISIANA (For Louisiana and differential territory destination)			
41-43 w.w. kerosene	5.00	5.00 – 5.25	5.00 – 5.25
ARKANSAS (For intrastate shipment only)			
42-44 kerosene	5.25	5.25	5.25
ARKANSAS (F. O. B. Arkansas refineries for interstate shipment)			
42-44 kerosene	5.00	5.00	5.00
CALIFORNIA			
38-40 w.w. kerosene	5.00 – 5.50	5.00 – 5.50	5.00 – 5.50

NEUTRAL OIL

PENNSYLVANIA Vis.	(Viscosity at 70°F.)		
200 No. 3 Assoc. Filt.	32.00 –33.50	32.00 –33.50	32.00 –34.00
180 No. 3 Assoc. Filt.	29.00 –31.00	29.00 –31.00	29.00 –31.00
150 No. 3 Assoc. Filt.	26.25 –28.00	26.25 –28.00	26.25 –28.00
	(Non Viscous)		
34 Grav. 330-340 Flash	7.25 – 7.75	7.25 – 7.75	7.25 – 7.75
36 Min. Neut. 300-305 Flash	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00
**OKLAHOMA Vis. Color	(Viscosity at 100°F.)		
100—No. 2	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
150—No. 3	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
150—No. 4	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
180—No. 3	9.00 –10.00	9.00 –10.00	9.00 –10.00
180—No. 4	9.50 – 9.75	9.50 – 9.75	9.50 – 9.75
180—No. 5	9.25 – 9.75	9.25 – 9.75	9.25 – 9.75
200—No. 3	9.50 –11.00	9.50 –11.00	9.50 –11.00
200—No. 4	9.50 –10.75	9.50 –10.75	9.50 –10.75
200—No. 5	8.50 –10.50	8.50 –10.50	8.50 –10.50
220—No. 3	12.50 –13.50	12.50 –13.50	12.50 –13.50
220—No. 4	12.25 –12.50	12.25 –12.50	12.25 –12.50
220—No. 5	11.50 –12.00	11.50 –12.00	11.50 –12.00
240—No. 3	14.00	14.00	14.00
240—No. 4	13.25 –13.50	13.25 –13.50	13.25 –13.50
240—No. 5	12.00 –13.00	12.00 –13.00	12.00 –13.00
280—No. 3	15.50 –16.50	15.50 –16.50	15.50 –16.50
280—No. 4	15.25	15.25	15.25
280—No. 5	14.00 –15.00	14.00 –15.00	14.00 –15.00
300—No. 5-6	17.00	17.00	17.00
**GULF COASTAL Vis. Color	(Viscosity at 100° F., pour test 0)		
100—No. 2 Unfilt. Pale	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00
200—No. 3 Unfilt. Pale	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
300—No. 3 Unfilt. Pale	10.00 –10.50	10.00 –10.50	10.00 –10.50
500—No. 3½ Unfilt. Pale	12.00 –12.50	12.00 –12.50	12.00 –12.50
750—No. 4 Unfilt. Pale	14.00 –14.50	14.00 –14.50	14.00 –14.50
200—No. 5½-Red Oil	7.50 – 8.00	7.50 – 8.00	7.50 – 8.00
300—No. 5½ Red Oil	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
500—No. 6 Red Oil	10.00 –10.50	10.00 –10.50	10.00 –10.50
750—No. 6 Red Oil	12.50 –13.00	12.50 –13.00	12.50 –13.00
**CALIFORNIA Vis. Color	(Viscosity at 100°F.)		
100—No. 2	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
100—No. 3	7.50 – 8.00	7.50 – 8.00	7.50 – 8.00
200—No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
300—No. 3	10.50 –11.00	10.50 –11.00	10.50 –11.00
450—No. 3-3½	13.00 –13.50	13.00 –13.50	13.00 –13.50
550—No. 3-3½	14.50 –15.00	14.50 –15.00	14.50 –15.00
600—No. 3-3½	15.00 –15.50	15.00 –15.50	15.00 –15.50
100—No. 5	6.50	6.50	6.50
200—No. 5	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
300—No. 5	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
400—No. 5	11.00 –11.50	11.00 –11.50	11.00 –11.50
500—No. 5	11.00 –11.50	11.00 –11.50	11.00 –11.50
600—No. 5	12.00 –12.50	12.00 –12.50	12.00 –12.50
700—No. 7	14.00 –14.50	14.00 –14.50	14.00 –14.50

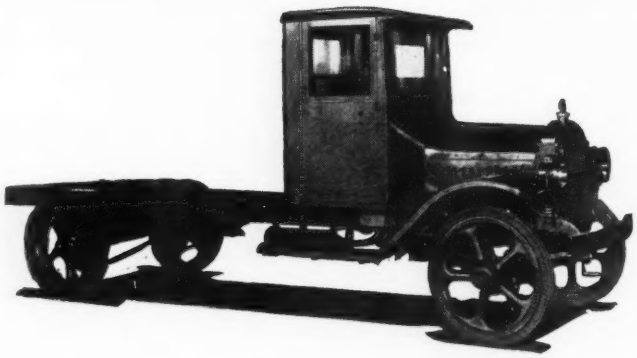
CYLINDER STOCKS

OKLAHOMA			
190-200 Vis. at 210° Brt. St.	31.00 –32.00	31.00 –32.00	31.00 –32.00
150-160 Vis. at 210° Brt. St.	23.00 –26.00	23.00 –26.00	23.00 –26.00
600 E St. 140-150 Vis.-210°	17.00 –18.00	17.00 –18.00	17.00 –18.00
600 St. Ref. Olive Green	9.00 –10.00	9.00 –10.00	9.00 –10.00
600 St. Ref. Dark Green	7.00 – 8.00	7.00 – 8.00	7.00 – 8.00
Black Oil	5.00	5.00	5.00
PENNSYLVANIA	(1-inch Immersion Test)		
600 Steam Refined	9.50 –10.25	9.50 –10.25	9.75 –10.50
650 Steam Refined	11.50 –12.50	11.00 –13.00	12.00 –13.00
600 Flash	16.00 –16.50	16.00 –16.50	15.00 –16.50
625 Flash	27.00 –28.00	27.00 –28.00	27.00 –28.00
600 Warren E	17.00 –19.00	17.00 –19.00	17.00 –19.00
600 Oil City E	15.50 –16.50	15.50 –16.50	15.50 –16.50
600 D Filtered	24.50 –25.50	24.50 –25.50	24.50 –25.50
Cold Test Stock, 40-50 p. p., 140-150 vis. at 210°, 540-550 flash, No. 8 color	30.00 –31.00	29.50 –31.00	29.50 –30.00
40-50 p.p., 140-150 vis. at 210, 540-550 flash, No. 6-6½ color diluted	27.00 –28.00	27.50 –29.00	28.00 –29.00

(Note—Prices of total immersion test goods average 1 to 3 cents per gallon higher)

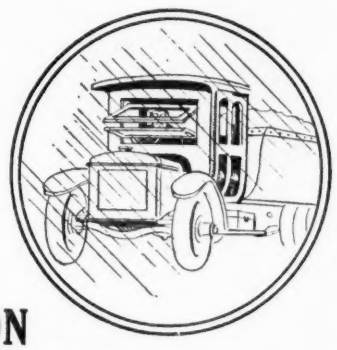
†PRICES NOMINAL ††ONLY ONE REFINER QUOTING *QUOTATIONS ONLY **REPRESENTS BOTH SALES AND QUOTATIONS

The Cab for Your Mack AB Truck—



USE a RAIN OR SHINE Comfort Coupe Cab on your Mack truck—and solve your cab problem. This cab enables your driver to be always on the go—through rain and snow.

Comfort Coupe Cabs protect your men under the worst weather conditions. When truck drivers are comfortable their driving efficiency is increased. The scientific wood-steel construction of RAIN OR SHINE Cabs permits your men to set new standards of continuous performance.



THE GENERAL WOODWORK CORPORATION
1225 BUDD STREET CINCINNATI, OHIO

TANKS, BARRELS, PUMPS, EQUIPMENT

THE following is a partial list of the products which we are regularly supplying to the oil trade. Do not hesitate to send us your inquiry on any special weight or out of the ordinary equipment or any other special steel plate construction:

Field Tanks, up to 55,000 barrels
Bulk Storage Tanks and equipment complete
Fuel Oil Tanks, all types and sizes
Truck Tanks, oval, round, square, or semi-rectangular
Fuel Oil Truck Tanks, insulated and with heating arrangement
Lubricating Oil Plants, including complete compounding equipment
Grease and Soap Kettles, steam jacketed, with air or mechanical agitator
Steel Drums, complete line
Rotary and Plunger Type Pumps, valves, and fittings

BROWN SHEET IRON & STEEL CO.

964 Berry Avenue St. Paul, Minn.

Tear off this Coupon and Mail it *Today*

Interested in .....

Size ..... Truck .....

Other Equipment .....

Name .....

Address .....

Refinery Markets on Wax and Heavy Oil Products

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

WAX

PENNSYLVANIA	Prices Dec. 19	Prices Dec. 12	Prices Dec. 5
Per Pound, New York			
122-124 white crude scale	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
124-126 white crude scale	3.00	3.00	3.00
OKLAHOMA			
**124-126 Semi-refined..	2.375– 2.625	2.375– 2.625	2.50 – 2.75
CALIFORNIA			
White crude scale, per pound, ton lots.....	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50

FUEL OIL

PENNSYLVANIA			
36-40 fuel oil.....	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75
30-34 fuel oil.....	4.625– 4.75	4.625– 4.75	4.625– 4.75
28-32 fuel oil.....	4.625– 4.75	4.625– 4.75	4.625– 4.75
OKLAHOMA			
38-40 straw distillate.....	3.25 – 3.375	3.25 – 3.375	3.25 – 3.375
36-38 straw distillate.....	3.00 – 3.125	3.00	3.00
*32-36 gas oil, straw.....	†2.50	†2.50	†2.625
*32-36 dark gas oil.....	2.375– 2.50	2.375– 2.50	2.50 – 2.625
28-30 fuel oil (in bbls.)...	$0.925– 0.975	$0.925– 0.975	$0.925– 0.975
26-28 fuel oil (in bbls.)...	$0.85 – 0.90	$0.875– 0.90	$0.875– 0.90
24-26 fuel oil (in bbls.)...	**$0.80	**$0.80– 0.825	**$0.80– 0.825
22-26 fuel oil (in bbls.)...	**$0.75– 0.775	**$0.75– 0.775	**$0.75– 0.775
18-22 fuel oil (in bbls.)...	**$0.70– 0.725	**$0.70– 0.725	**$0.725
16-18 fuel oil (in bbls.)...	**$0.70	**$0.70	**$0.70
14-16 fuel oil (in bbls.)...	**$0.70	**$0.70	**$0.70

*Zero cold test low flash goods sell for ¼ cent more per gallon.
Zero cold test fuel oils sell for 5 to 15 cents more per bbl.

KANSAS (F. O. B. refinery Kansas destination.)			
38-40 straw distillate.....	3.50 – 3.75	3.50 – 3.75	3.50 – 3.75
36-38 straw distillate.....	3.25	3.25	3.25
32-36 gas oil.....	2.75 – 2.875	2.75 – 2.875	2.75 – 2.875
24-26 fuel oil	$0.90 – 0.95	*$0.90 – 0.95	*$0.90 – 0.95
18-22 fuel oil.....	*$0.85	*$0.85	*$0.85
NORTH TEXAS			
38-40 straw distillate.....	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25
32-36 gas oil, cracked....	2.25	2.25 – 2.375	2.375– 2.50
32-36 gas oil, uncracked..	2.25 – 2.375	2.375	2.50
24-26 fuel oil (in bbls.)...	$0.75	$0.75 – $0.80	$0.775–$0.80

GULF COASTAL	Prices Dec. 19	Prices Dec. 12	Prices Dec. 5
Fuel (in bbls.).....	$1.50 – $1.55	$1.50 – 1.55	$1.50–$1.55
Gas oil.....	4.375– 4.50	4.375– 4.50	4.375–4.50
NORTH LOUISIANA (For Louisiana and differential territory destination)			
32-36 gas oil, dark.....	3.00 – 3.125	3.00 – 3.125	3.00 – 3.125
32-36 gas oil, straw.....	3.125– 3.25	3.125– 3.25	3.125– 3.25
16-20 fuel oil (in bbls.) ...	$1.00	$1.00	$1.00
ARKANSAS (For Arkansas intrastate shipment only)			
32-36 gas oil, straw.....	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
32-36 gas oil.....	3.00	3.00	3.00
28-32 gas oil.....	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
ARKANSAS (F. O. B. Arkansas refineries for interstate shipment)			
28-32 gas oil.....	2.75	2.75	2.75
Smackover crude fuel....	$0.975– 1.00	$0.975– 1.00	$0.975– 1.00
CALIFORNIA (F. O. B. San Joaquin Valley. At San Francisco, 4c per bbl. more)			
14-18 fuel oil (in bbls.)...	$0.60 –$0.75	$0.60 –$0.75	$0.60 –$0.75
14-18 Bunker oil (in bbls.)	$0.80 –$1.00	$0.80 –$1.00	$0.85 –$1.00
30-34 gas oil (in bbls.)...	$1.05 –$1.10	$1.05 –$1.10	$1.05 –$1.10
27 Plus Diesel oil (in bbls.)	$0.85 –$1.00	$0.85 –$1.00	$0.85 –$1.00

PETROLATUMS

PENNSYLVANIA (In cents per pound in tank cars; in barrels, in car lots ¾c per pound more.)			
Snow White.....	9.25	9.25	9.25
Lily White.....	8.25	8.25	8.25
Cream White.....	7.25	7.25	7.25
Light Amber.....	5.50	5.50	5.50
Amber.....	4.50	4.50	4.50
Red.....	3.75	3.75	3.75
Green No. 5 color.....	3.50	3.50	3.50

**PETROLEUM COKE

(Per ton in car lots)

Lump.....	$5	$5	$5
Still run.....	$3	$3	$3
Breeze.....	$2	$2	$2

†PRICES NOMINAL ††ONLY ONE REFINER QUOTING *QUOTATIONS ONLY **REPRESENTS BOTH SALES AND QUOTATIONS

(*Continued from Page* 97)

in the week for some kerosenes for export but the amount purchased was not revealed. Two or three refiners said they had had offers from exporters at 4.25 cents a gallon for 41-43 w. w. grade. North Texas refiners said they also had had offers at approximately the same price.

One or two Kansas refiners have been forced to sell kerosenes to out-of-the-state points in order to keep production moving. Most of the time Kansas refiners who make kerosenes have a demand greater than their supplies.

Correction

Through typographical error, prices of gas oils in Arkansas intrastate markets in Dec. 14 issue, page 133, were transposed. Prices in the column dated Dec. 12 were correct, but prices in the Dec. 5 and No. 28 columns were incorrect. These prices should have been shown for Dec. 5 and Nov. 28:

	Dec. 5	Nov. 28
32-36 gas oil, straw	3.25-3.50	
32-36 gas oil	3.00	3.00
28-32 gas oil	2.75-3.00	2.75-3.06

Domestic Demand Stiffens N. Y. Lube Prices

NEW YORK, Dec. 17.—The demand for lubricating oils from foreign buyers continued to lag in the New York market this week. Dealers here, however, reported extensive buying in the field for domestic consumption had stiffened prices considerably, and as the week ended quotations for a few items at the seaboard showed fractional increases over last Saturday.

Dark bright stock, particularly, was credited with heavy buying. At least two sellers still offered this commodity at 35 cents a gallon in barrels at New York today but several had advanced their quotations from 1 to 2 cents. Western bright stocks were reported to be scarce. Buyers reported at least two large manufacturers of the more viscous grades were sold up through February of next year.

The 630 flash steam refined is another item which is none too freely available. One of the largest Pennsylvania refiners making this oil reports his output committed for the next two months. It was hard to obtain any appreciable quantity of this grade in New York under 23 cents toward the end of the week.

The wax market showed no appreciable change over a week ago except for occasional offers of white crude scale at 2.625 cents a pound. Sellers who last week sold 124-126 at this price asserted they were willing to duplicate their sales. There has been no noticeable pickup in demand from foreign buyers for either scale of the fully refined grades.

Deussen Resigns From Marland Post

FORT WORTH, Dec. 15.—The resignation of Alexander Deussen as vice president in charge of the Gulf Coastal district offices at Houston is announced by Marland Oil Co. of Texas. Mr. Deussen will again engage in consulting geological practice.

Besides being a past president of the American Association of Petroleum Geologists and the first director representing the geological profession on the American Petroleum Institute board, Mr. Deussen is widely known as the author of United States Geological Survey publications.

Seasonal Goods Demand Steady In Chicago Market

Staff Special
CHICAGO, Dec. 17

SEASONAL goods enjoyed a steady demand throughout the week ended Dec. 17 in the Chicago market. Burner oil demand was steady to good. Unfavorable motoring conditions throughout the territory interfered with gasoline consumption. There was a slowing up of inquiries from jobbers. Reports from Wisconsin, northern Minnesota and Michigan indicated snow blocked roads.

Demand for U. S. Motor gasoline was quiet. Practically all sellers were asking .125 cent less for 58-60, 437 e.p. at the close of business today than on Monday. After beginning the week at 5.875 to 6.125 cents, the price range narrowed to 5.875 to 6 cents Tuesday and remained there until toward the end of the week when most sales were made at 5.75 to 6 cents. Two or three refiners were still getting 6.125 cents for their U. S. Motor when the week ended.

High test gasolines were in steady demand throughout the week. Prices were generally unchanged. The 60-62, 437 e.p. gasoline moved at 6.125 to 6.25 cents all week. Most sales of 60-62, 400 e.p. were made at 6.50 to 6.625 cents, although some were recorded as low as 6.25 cents. The 64-66, 375 e.p. grade was 6.875 to 7 cents throughout the week.

Kerosene remained quiet this week. The 41-43 w.w. sold mostly at 4.50 cents flat until the final days of the week, when considerable volume of sales was also made at 4.375 cents.

Better demand was reported for distillate this week by most sellers. Prices were generally unchanged over last week. The 38-40 straw continued to sell at 3.25 to 3.375 cents.

Steady demand for zero cold test low flash gas oils was reported this week. Nearly all sellers reported good movement for both spot and contract goods. Prices were generally unchanged throughout the week. The ordinary dark 32-36 gas oil moved mostly at 2.50 cents although some sales were reported at 2.375 cents. The dark 32-36 gas oil with a zero cold test moved at 2.75 to 2.875 cents. Several sellers reported getting 3 cents for this grade of goods. The 32-36 straw zero gas oil with a low flash was in good demand at unchanged prices, nearly all sellers reported getting 3.125 to 3.25 cents for their goods.

Domestic demand for low cold test fuel oils was good this week. Prices were generally unchanged throughout the week. Buying by industrial companies was slack. The 28-30 fuel moved at $1.00 to $1.05 with some sales reported at both above and below these figures. The 24-26 grade sold mostly at $0.80 to $0.85 all week. Fuel of 22-26 gravity moved at $0.80 to $0.825. The 18-22 fuel moved mostly at $0.775 to $0.80. Quotations on Smackover crude fuel continued at $1.00 to $1.025.

Continued cold weather is forecasted for the early part of the week in Standard of Indiana territory with weather becoming warmer towards close. One or two precipitation periods later in the week.

HOUSTON, Dec. 17.—Humble Oil & Refining Co. is proceeding with work on a 10,000 barrel topping plant for west Texas crude to be located at its Ingleside pipeline terminal on Corpus Christi bay. Ground is now being cleared for construction activities.

The Ingleside plant will be the third to be built by the Humble for west Texas crude, one of similar capacity being located at San Antonio and a third being already in operation at McCamey, Upton county.

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Week's Price Changes Tank Wagon Markets

Gasoline Changes

Atlantic Refining—The 18 cent tank wagon price on gasoline at Springfield and New Haven, published first in the Dec. 14 issue, became effective **Aug. 24**, and at Hartford on **Nov. 18.**

Standard of Kentucky—T.w. and s.s. price gasoline advanced 3 cents, Atlanta, to 17 cents and 19 cents, respectively, including 4 cent road tax, **Dec. 3.**

Standard of Indiana—T.w. and s.s. price gasoline, each advanced at the following points: South Bend, 2.4 cents, both to 17.4 cents, including 3 cent tax, **Dec. 2**; Des Moines, 1 cent, to 14.9 cents and 16.9 cents, respectively, including 3 cent state tax, **Dec. 11**; Decatur, 3 cents, to 13.5 cents and 15.5 cents respectively, including 2 cent tax, **Dec. 13.** T.w. price at Wichita cut 2 cents, s.s. cut 4 cents, both to 12.8 cents, including 2 cent tax, **Dec. 13.**

* * *

Kerosene Changes

Standard of Kentucky—Kerosene prices were cut at these points, **Dec. 1:** Atlanta, 1½ cents, making t.w. price 14 cents; Macon, 3 cents, to 13.5 cents t.w.; and Jacksonville, 2½ cents, to 11.5 cents t.w.

Standard of Louisiana—Kerosene price cut 1 cent, Little Rock, to 11 cents t.w., **Dec. 12.**

Begin Building Plants

LOS ANGELES, Dec. 16.—Work on the manufacturing plant for the Doheny-Stone Drill Co. has been started in the industrial area of Torrance and the plant probably will be completed about March 1. The first unit will be 180 by 360 feet, fully equipped will amount to an investment of about $500,000. The building will be of galvanized iron and steel. It is planned to employ about 250 men. The Old Stone Drill Co., plant at Glendale, which is now being used, will be abandoned. N. W. Hendershot, for years with the Oil Well Supply Company, and well known throughout the United States, is sales manager.

German Visits in Los Angeles

LOS ANGELES, Dec. 16.—Herbert Oberstelehn, special representative of large seamless tube mills in Germany, is in Los Angeles visiting with officials of the American Seamless Tube Corp. Before coming to Los Angeles Mr. Oberstelehn spent some time in the New York office of the American Seamless Tube Corp.

Tank Wagon, Service Station Markets for Gasoline and Kerosene In United States Territories and Canada

(As posted by principal marketing companies)

(OIL PRICE HANDBOOK has t.w. and s.s. markets for whole year arranged for quick reference)

These Prices In Effect December 19, 1927

S.O. NEW JERSEY TERRITORY

	Gasoline				Oil
			Total		
	T.W.	Tax	T.W.	S.S.	T.W.
Atlantic City, N. J.	16	2	18	20	14
Newark, N. J.	16	2	18	20	14
Annapolis, Md.	16	4	20	23	12
Baltimore, Md.	16	4	20	23	10
Cumberland, Md.	16	4	20	23	14
Washington, D. C.	16	2	18	21	12
Danville, Va.	16	4½	20 5	*	14
Norfolk, Va.	16	4½	20 5	23 5	12
Richmond, Va.	14	4½	18 5	21 5	14
Roanoke, Va.	16	4½	20 5	23 5	14
Petersburg, Va.	16	4½	20 5	23 5	14
Charleston, W. Va.	16	4	20	23	14
Keyser, W. Va.	16	4	20	*	14
Parkersburg, W. Va	13	4	17	20	14
Wheeling, W. Va.	16	4	20	23	14
Charlotte, N. C.	16	4	20	23	14
Hickory, N. C.	16	4	20	23	14
Mt. Airy, N. C.	16	4	20	23	14
Salisbury, N. C.	16	4	20	23	14
Charleston, S. C.	15	5	20	23	14
Columbia, S. C.	15	5	20	23	14

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

*New York City	17	0	17	21	15
Albany, N. Y.	13	0	13	15	15
Buffalo, N. Y.	15	0	15	18	14
†Rochester, N. Y.	13	0	13	16	13
Syracuse, N. Y.	15	0	15	15	15
Boston, Mass.	17	0	17	18	15
Augusta, Me.	17	4	21	23	15
Manchester, N. H.	17	3	20	22	15
Burlington, Vt.	17	3	20	22	15

*In steel barrels.

†It is reported that S. O. New York is selling a second grade of gasoline at Rochester, 4c below the above posted prices which apply on its Socony grade.

ATLANTIC REFINING

Pittsburgh, Pa.	16	*	16	*22	14
Philadelphia, Pa.	15	*	15	*21	14
Allentown, Pa.	16	*	16	*22	14
Erie, Pa.	12	*	12	*18	14
Scranton, Pa.	16	*	16	*22	14
Altoona, Pa.	16	*	16	*22	14
Dover, Del.	16	3	19	22	14
Wilmington, Del.	16	3	19	22	14
Providence, R. I.	17	2	19	19	15
Boston, Mass.	17	0	17	17	15
Springfield, Mass.	18	0	18	18	15
Worcester, Mass.	17	0	17	17	15
Hartford, Conn.	18	2	20	20	15
New Haven, Conn.	18	2	20	20	15

*3-cent state tax is collected by retail dealer and paid by him directly to state.

S. O. KENTUCKY

Lexington, Ky.	13	5	18	21	15.5
Louisville, Ky.	13	5	18	21	15
Covington, Ky.	14	5	19	22	15 5
Clarksdale, Miss.	13	4	17	20	12.5
Gulfport, Miss.	††14.5	4	††18.5	21.5	14
Jackson, Miss.	13	4	17	20	13.5
Natchez, Miss.	12.5	4	16.5	19 5	14
Vicksburg, Miss.	12.5	4	16.5	19.5	14
Birmingham, Ala.‡	14	4	18	21	15.5
Mobile, Ala.‡	13	4	17	20	15
Montgomery, Ala.*‡	15	4	19	22	16.5
Atlanta, Ga.	13	4	17	19	†14
Augusta, Ga.	15	4	19	22	†16.5
Macon, Ga.	15	4	19	22	†13.5
Savannah, Ga.	13	4	17	19	†14.5
Jacksonville, Fla.°	13	5	18	21	11.5
Miami, Fla.°	15	5	20	23	15.5
Tampa, Fla.°	13	5	18	21	14
Pensacola, Fla.°**	14	5	**19	22	14

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included.

‡Alabama gasoline prices include 1/40 of 1c inspection fee, effective Oct. 1, 1927.

†Georgia kerosene prices include 1c state tax.

°Florida gasoline prices include ½c inspection fee.

**Both tank wagon prices include 1c city tax at Pensacola, which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

S. O. INDIANA

	Gasoline				Oil
			Total		
	T.W.	Tax	T.W.	S.S.	T.W.
Chicago, Ill.	14	2	16	18	12
Decatur, Ill.	11 5	2	13 5	15 5	12 1
E. St. Louis, Ill.	13 1	2	15 1	17 35	11 2
Joliet, Ill.	14 4	2	16 4	18 4	12 3
Peoria, Ill.	10	2	12	12	12 1
Quincy, Ill.	14 2	2	16 2	18 2	11 9
Indianapolis, Ind.	11 2	3	14 2	15 2	13 2
Evansville, Ind.	14	3	17	19	13
South Bend, Ind.	14.2	3	17.4	17.4	13.4
Detroit, Mich.	12 8	3	15.8	17.8	13 7
Grand Rapids, Mich.	11	3	14	16	13 6
Saginaw, Mich.	14 9	3	17 9	19 9	13 8
Green Bay, Wis.	14.6	2	16 6	18 6	12 4
Madison, Wis.	14.3	2	16 3	18 3	12 1
Milwaukee, Wis.	14.1	2	16 1	18 1	11 9
La Crosse, Wis.	15.2	2	17 2	19 2	13
Minneapolis, Minn.	12	2	14	14	12 9
Duluth, Minn.	13.5	2	15 5	17 5	12 9
Mankato, Minn.	12.1	2	14 1	16 1	12 7
Des Moines, Ia.	11.9	3	14.9	16.9	12 3
Davenport, Ia.	12 5	3	15.5	17.5	12 3
Sioux City, Ia.	14 1	3	17 1	19 1	11 9
Mason City, Ia.	14.5	3	17.5	19 5	12 3
St. Louis, Mo.	*13.6	2	15 6	17 9	11 3
Kansas City, Mo.	†12.9	2	14 9	16 9	10 6
St. Joseph, Mo.	†12.5	2	14 5	16 5	11 2
Fargo, N. D.	13	2	15	17	14 9
Grand Forks, N. D.	17.2	2	19.2	21 2	15 2
Minot, N. D.	16.9	2	18 9	20 9	14 9
Pierre, S. D.	15.5	4	19 5	21 5	13 9
Huron, S. D.	15.5	4	19.5	21.5	13 9
Wichita, Kans.	10.8	2	12 8	12.8	10.8
Bartlesville, Okla.	12.8	3	15.8	17.8	10 8

S. O. Indiana's quantity discount schedule on tank wagon deliveries of gasoline outside the city of Chicago is 1c for 50 gals. or more at one delivery; 1½c for 6,000 gals. or more a month; 2c for 10,000 gals. or more a month, and 3c for 15,000 gals. or more a month.

In Chicago, above discounts apply, except that minimum required quantity to get the 1c discount is 100 gals., instead of 50 gals. This 1c discount applies on quantities of 100 gals. and over, in addition to regular Q.D.A. discounts applying thru rest of territory, as stated above.

Service station discount is 2c per gal. to consumers of 200 gals. or more a month, or 2400 gals. per year.

Discount on kerosene is 1c on 50 gal. dumps throughout territory.

*Includes city tax of ½c.

†Includes city tax of 1c.

S. O. NEBRASKA

Omaha, Neb.	14.25	2	16.25	16.25	12.25
McCook	12.75	2	14.75	16.75	11.50
Norfolk	14.75	2	16.75	18.75	12.75
North Platte	15.75	2	17.75	19.75	13.50
Scottsbluff	15.25	2	17.25	19.25	13.00

CONTINENTAL OIL

Denver, Colo.	13	3	16	16	12.5
Pueblo, Colo.	12	3	15	15	14.5
Grand Junction, Colo.	17.5	3	20.5	22.5	18
Casper, Wyo.	14	3	17	19	13
Cheyenne, Wyo.	15	3	18	20	14.5
Butte, Mont.	19	3	22	22	19
Helena, Mont.	19.5	3	22.5	24.5	19
Salt Lake City, Utah	16.5	3½	20	21	17
Boise, Ida.	19.5	4	23.5	25.5	19
Twin Falls, Ida.	19.5	4	23.5	25.5	19
Albuquerque, N. M.	16	5	21	24	17

S. O. CALIFORNIA*

Phoenix, Ariz.	19	4	23	27	21.5
Los Angeles, Cal.	13.5	3	16.5	20.5	15.5
Fresno, Cal.	14	3	17	21	16.5
San Francisco, Cal.	14	3	17	21	15.5
Reno, Nev.	18	4	22	26	19
Portland, Ore.	14.5	3	17.5	21.5	16.5
Seattle, Wash.	14.5	2	16.5	20.5	16.5
Spokane, Wash.	18.5	2	20.5	24.5	20.5
Tacoma, Wash.	14.5	2	16.5	20.5	16.5

*On Oct. 1, t.w. price at all points for spot sales, was advanced 1c. Very large portion of deliveries are under contract carrying above prices. New customers signing contracts and selling only one brand of gasoline, are given prices published in above table.

S. O. LOUISIANA

Little Rock, Ark.	11	5	16	16	11
Alexandria, La.	13	2	15	18	†14
Baton Rouge, La.	12	7	14	17	†12.5
Lake Charles, La.	13.5	2	15.5	18.5	†14
New Orleans, La.	13.5	2	*15.5	*17.5	†14
Shreveport, La.	13.5	2	15.5	18.5	†13
Lafayette, La.	13	2	15	18	†13.5
Bristol, Tenn.	16	3	19	22	14
Chattanooga, Tenn.	16.5	3	19.5	22.5	15
Knoxville, Tenn.	16.5	3	19.5	22.5	15
Nashville, Tenn.	15	3	18	21	15
Memphis, Tenn.	12	3	15	16.5	14

*New Orleans gasoline prices include 1c parish tax in addition to 2c state tax, and kerosene prices include 1c state tax and 1c parish tax.

†Kerosene price in Louisiana includes 1c state tax.

S. O. OHIO

	Gasoline				Oil
			Total		
	T.W.	Tax	T.W	S.S.	T.W.
All Ohio points	14	3	17	19	14

MAGNOLIA PETROLEUM

Muskogee, Okla.	12	3	15	18	10
Oklahoma City	10	3	13	14	10
Tulsa, Okla.	10	3	13	14	10
Fort Smith, Ark.*	13	*3	16	19	12
Little Rock, Ark.	11	5	16	16	12
Texarkana, Ark. *	12	*3	15	18	12
Dallas, Tex.	11	3	14	17	11
Fort Worth, Tex.	11	3	14	16	10
Houston, Tex.	10	3	13	15	15
San Antonio, Tex.	10	3	13	15	10
El Paso, Tex.	11	3	14	15	16

*Within City of Texarkana and Fort Smith, the state tax on gasoline is 3c per gal. conforming with the Texas state tax. In these two districts outside of the city the 5c Arkansas tax applies.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M. & P. Naphtha	Cleaner Naphtha
Chicago	16	18	18
Detroit	17.7	19 7	19 7
Kansas City	†16.2	†18.2	†18.2
Milwaukee	16.7	*20 7	*20.7
Minneapolis	*20	*22	*22
St. Louis	15.9	17 9	17.9
New York	...	19	....

*Includes 2c state tax.

†Includes 1c city tax.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

ONTARIO

	Gasoline				Oil
			Total		
	T.W.	Tax	T.W.	S.S.	T.W.
Toronto	19.5	3	22 5	26	21
Ottawa	19.5	3	22 5	26	21
Cochrane	24 5	3	27.5	36	26
Ft. William	24.5	3	27.5	31	23.5

MANITOBA

Winnipeg	24.5	3	27.5	31	23.5

SASKATCHEWAN

Regina	27.5	0	27.5	32	26.5

ALBERTA

Edmonton	26.5	3	29.5	33	25 5
Calgary	22.5	3	25.5	29	23.5

BRITISH COLUMBIA

Vancouver	21	3	24	28	22

QUEBEC

Montreal	20.5	3	23.5	27	21
Quebec City	22.5	3	25.5	31	23
Three Rivers	22.5	3	25.5	30	23

NEW BRUNSWICK

St. John	24.5	3	27.5	32	24
Moncton	24.5	3	27.5	32	24

NOVA SCOTIA

Halifax	24.5	3	27.5	32	24
Sydney	24.5	3	27.5	32	24

PRINCE EDWARD ISLAND

Charlottetown	24.5	3	27.5	31	24

Note: In districts surrounding these points 1c additional is added to city price.

Contract Movement Heavy in East, Pre-Holiday Lull Begins

Staff Special
NEW YORK, Dec. 17

THE usual pre-holiday lull began in eastern gasoline markets this week. There was a heavy movement of contract consignments reported. Little new buying developed in the northern seaboard districts. On the other hand, in southern districts where the weather is more or less "open," a fair demand for spot shipment of motor fuel from the jobbing trade was reported by the larger refiners who have terminals all along the seaboard.

Prices in all seaboard markets were without material change over a week ago. During the week, isolated offers of gasoline were made at one or two points at prices slightly under the average going market. Bargains were quickly picked up, however, and the distress goods had little if any effect on general market conditions.

A New York harbor, U. S. Motor gasoline in tank cars was quoted generally at 8 to 8.25 cents. At least two refiners continued to ask 8.50 cents for this gasoline but conceded they were going to top little business at this figure and were not refusing to take 8.25 cents when it was necessary in order to get business.

In the New England district, refiners quoted a minimum of 8 cents for U. S. Motor gasoline in tank cars, whereas a week ago this grade was being offered to jobbers at 7.75 cents by two refiners. The latter price could still be done in barges, according to a large Boston jobber. Marketing conditions in Boston were reported to be in bad shape again. Tank wagon deliveries were being made at anywhere from 10.5 to 11.5 cents, against 17 cents, the price posted by Standard Oil Co. of New York and Atlantic Refining Co.

U. S. Motor gasoline was quoted at 8 to 8.50 cents by Baltimore refiners most of the week. On Wednesday, two large sellers quoting 8 to 8.25 cents reported a large volume of sales which temporarily narrowed the market range in this vicinity.

Kerosene was in active demand and prices were steady throughout the week, except at Baltimore where several fair sized sales of water white were reported at 7.125 cents. The refiner offering goods at this price, however, was again quoting 7.25 cents as the week ended. In New England, where the weather has been much colder than to the south on the seaboard, kerosene was reported extremely scarce and refiners stated they were having no trouble in getting 7.50 cents for water white.

Gas oil was generally unchanged. For dark 28-34 at New York harbor, the asking price was 4.75 to 5 cents a gallon but buyers, in view of the unseasonable weather, were not purchasing much at these prices. New England refiners reported heavy stocks of gas oil and were offering 28-34 at approximately 0.25 cent under New York harbor prices.

Contract movement of bunker oil was heavy and spot buying from steamship companies was fair considering the off season. Grade C was unchanged at $1.35 at refineries and $1.415 f.a.s. New York harbor, and points further south. In New England one refiner was offering Grade C at $1.35, but for the most part this oil was quoted at $1.40 per barrel.

French Buyer Takes Cargo of Gas; Total Gulf Business Small

Staff Special
NEW YORK, Dec. 17

THE bulk gasoline market at the Gulf was an uneventful affair during the past week. The business closed was comparatively small in volume. Several inquiries were received from French buyers but in view of the higher quotations made by most suppliers of light oils, foreign companies either postponed their purchases or withdrew their inquiries entirely.

One of the smaller Independents reported the sale of a cargo of approximately 55,000 barrels of 64-66, 375 end point gasoline to a French buyer for January loading at the Gulf. The actual selling price was not divulged but the supplier indicated the goods brought between 8.25 and 8.50 cents per gallon.

Most of the leading refiners were asking 7.25 cents a gallon for U. S. Motor gasoline in mixed cargoes and 8.50 cents for the 64-66, 375 end point grade. The foreign inquiry of late has been largely for the latter grade and for this reason it has been hard to determine an actual going market for U. S. Motor. However, goods sold at the Gulf recently for coastwise shipment have gone at 7 cents and in isolated instances at slightly less than 7 cents.

Of the more important inquiries in the market this week was one from a French subsidiary of a large United States refiner, seeking approximately 65,000 barrels of 61-63, 390 end point and 64-66, 375 end point gasoline and prime white kerosene for January-February shipment from the Gulf. A careful check of the market revealed that the best prices made by suppliers were 8.25 cents for 61-63, 8.50 cents for 64-66, 375 and 6 cents for prime white. The buyer was skeptical about supporting the newly established prices and postponed obtaining his requirements until after the first of the year.

Other inquiries made this week were mostly for part cargoes of high gravity gasoline. Supplies of high test gasolines continued extremely limited in the Gulf region and buyers on finding they were unable to do prices which have prevailed for approximate two months, withdrew their inquiries.

The movement of cased goods was almost entirely against contracts and prices showed but little fluctuation. South American consumers have been taking larger quantities and there was fair movement to west Africa on consignment. For U. S. Motor in cases, the majority of refiners were asking $1.60, and $1.75 for the 64-66, 375 end point grade.

Gas oil prices were fairly steady although demand from the European trade has been disappointing. Dark gas oil of 26-28 gravity was quoted at a minimum of 4.125 cents a gallon at the Gulf with several suppliers asking 4.25 cents for the grade and also offering higher gravity goods at the same price. No cargo sales were reported for shipment from the Gulf. A leading broker in New York, however, reported selling a full cargo of California gas oil to Scandinavian buyer at $1.08 a barrel.

The fuel oil market was a shade easier and except for routine bunkering, the market was virtually dead. No spot sales of Grade C were reported; this oil was offered at $1.00 a barrel in cargoes by a few suppliers. For bunkering, Grade C was quoted at around $1.20 a barrel in the New Orleans district and $1.25 a barrel further west on the Gulf.

The market for Mexican heavy

(*Continued on Page* 107)

Correction

Information recently received shows that 5.50 to 6.00 cents has been the correct price for 36.40 furnace oil, New England since Nov. 7.

Complete Seaboard Market

Export markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the years 1924-1925-1926)

Eastern Domestic Market

(Prices for tank car lots, f.o.b. refinery or seaboard terminal, represent majority of quotations and sales.)

	Dec. 19	Dec. 12	Dec. 5
U.S. Motor gasoline, New York harbor	8.00 – 8.25	8.00 – 8.25	8.00 – 8.25
U.S. Motor gasoline, Philadelphia	8.25 – 8.50	8.25 – 8.50	8.25 – 8.50
U.S. Motor gasoline, New England	8.00	8.00	8.00
U.S. Motor gasoline, Baltimore	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
U.S. Motor gasoline, Norfolk	8.25 – 8.50	8.25 – 8.50	8.25 – 8.50
U.S. Motor gasoline, Wilmington	†8.50	†8.50	†8.50
U.S. Motor gasoline, Charleston	8.00	8.00	8.00
U.S. Motor gasoline, Savannah	7.75	7.75	7.75
U.S. Motor gasoline, Jacksonville	7.75	7.75	7.75
California U.S. Motor gasoline, Baltimore	8.50	8.50	8.50
California U.S. Motor gasoline, Philadelphia	8.50	8.50	8.50
Water white kerosene, New York harbor	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
Water white kerosene, Philadelphia	7.25 – 7.50	7.25 – 7.50	7.25 – 7.50
Water white kerosene, Baltimore	7.25 – 7.50	7.25 – 7.50	7.25 – 7.50
Water white kerosene, New England	†7.50	†7.50	†7.50
28-34 gas oil, New York harbor	4.75 – 5.00	4.75 – 5.00	4.625– 5.00
28-34 gas oil, New England	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
38-42 furnace oil, New York harbor	6.00	6.00	6.00
36-40 furnace oil, New England	5.50 – 6.00	5.50 – 6.00	5.50 – 6.00
Grade C bunker oil, New York harbor	$1.35	$1.35	$1.35
Grade C bunker oil, New England	$1.35 –$1.40	$1.40	$1.40
Diesel oil, New York harbor	$2.10	2.10	$2.10
MEDICINAL OILS			
Russian 885-890 s.g., 325-330 vis.	$0.80 – 0.90	$0.80 – 0.90	$0.80 –$0.90
Russian 870-875 s.g., 150-155 vis.	$0.67 – 0.77	$0.67 – 0.77	$0.67 –$0.77
Russian 860-865 s.g., 80-85 vis.	$0.65 – 0.75	$0.65 – 0.75	$0.65 –$0.75

†Only one refiner quoting.

New York Export Market

(Gasoline and kerosene in cases in bulk. Lubricating oils are per gal. in bbls. Cylinder oils are Penna. products.)

	Dec. 19	Dec. 12	Dec. 5
U. S. Motor gasoline	23.90	23.90	23.90
43-45, 150 w.w. kerosene	18.15	18.15	18.15
42-44, 110 s.w. kerosene	17.15	17.15	17.15
CYLINDER OILS			
Bright stock, dark	35.00 –37.00	35.00 –36.00	35.00 –36.00
600 D filtered	30.00 –31.00	30.00 –31.00	30.00 –31.00
600 Warren E filtered	25.00 –26.00	25.00	25.00
600 s.r. unfiltered	17.00	17.00 –17.50	17.00 –17.50
650 s.r. unfiltered	18.50 –19.00	18.50 –19.00	18.50
600 flash s.r.	20.00 –21.00	20.00	20.00
630 flash s.r.	33.00	33.00	33.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	20.00	20.00	20.00
250 vis. No. 6 color	19.00	19.00	19.00
200 vis. No. 6 color	18.50	18.50	18.50
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¼ color	24.00	24.00	24.00
180 vis. No. 3¼ color	20.00	20.00	20.00
100 vis. No. 2¼ color	15.75	15.75	15.75
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	35.00	35.00	35.00
500 vis. No. 6½ color	33.00	33.00	33.00
400 vis. No. 7¼ color	31.00	31.00	31.00
300 vis. No. 6 color	30.00	30.00	30.00
200 vis. No. 3¼ color	24.00	24.00	24.00
MEDICINAL OILS			
875-885 s.g.	$0.80	$0.80	$0.80
865-870 s.g.	$0.70	$0.70	$0.70

WAXES (In cents per pound, f.a.s. carload lots)

WHITE CRUDE SCALE (In barrels)

	Dec. 19	Dec. 12	Dec. 5
122-124 A.m.p.	2.625– 2.75	2.75	2.625– 2.75
124-126 A.m.p.	2.625– 2.75	2.75	2.625– 2.75
FULLY REFINED (In burlap bags)			
123-125 A.m.p. Phila.	3.75	3.75	3.75
125-127 A.m.p.	3.75	3.75	3.75
128-130 A.m.p.	3.875– 4.125	3.875– 4.125	3.875– 4.125
130-132 A.m.p.	4.375– 4.50	4.375– 4.50	4.375– 4.50
133-135 A.m.p.	*5.50	*5.50	*5.50
135-137 A.m.p.	*5.75 – 6.00	*5.75 – 6.00	*5.75– 6.00
YELLOW CRUDE SCALE			
124-126 A.m.p.	2.625	2.625	2.625

***Prices nominal.**

Gulf Export Market

(F.O.B. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. and over, except where otherwise noted.)

GASOLINE	Dec. 19	Dec. 12	Dec. 5
U. S. Motor	7.00 – 7.25	7.00 – 7.25	7.00
60-62, 400 e.p.	*8.00	*7.75 – 8.00	*7.75
61-63, 390 e.p.	8.25	8.00 – 8.25	8.00
64-66, 375 e.p.	8.50	8.50	8.25
U. S. Motor, cases (cargoes)	$1.60	$1.60	$1.60
64-66, cases (cargoes)	$1.75	$1.75	$1.75
***Nominal.**			
KEROSENE			
44 water white	7.00	7.00	7.00
41-43 prime white	6.00	6.00	6.00
Water white, cases (cargoes)	$1.60	$1.60	$1.60
Prime white, cases (cargoes)	$1.50	$1.50	$1.50
DOMESTIC GAS & BUNKER OILS			
*26-28 gas oil	4.125– 4.25	4.125– 4.25	4.125– 4.25
*30-32 gas oil	4.25	4.25	4.25 – 4.50
Grade C bunker oil	$1.20 –$1.25	$1.15 –$1.25	$1.20 – 1.30
Grade C bunker oil, cargoes	$1.00 –$1.05	$1.02 –$1.05	$1.05
***Translucent thru neck of 4 oz. bottle.**			
MEXICAN CRUDE AND BUNKER OILS (F.O.B. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid	$1.10 –$1.16	$1.10 –$1.16	$1.10 – 1.16
Grade C bunker oil, for bunkering purposes, taxes paid	$1.35	$1.35	$1.35

SOUTH TEXAS LUBRICATING OILS (Viscosity at 100° F.; cold test 0) (Tanker, f.o.b. Houston)

100 vis. No. 2 unfiltered pale	6.00	6.00 – 6.50	6.00 – 6.50
200 vis. No. 3 unfiltered pale	8.00 – 8.50	8.00 – 9.00	8.00 – 9.00
300 vis. No. 3 unfiltered pale	9.00 – 9.50	9.00 –10.00	9.00 –10.00
500 vis. No. 3½ unfiltered pale	10.50 –11.00	11.00 –11.50	11.00 –11.50
200 vis. No. 5½ red oil	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
300 vis. No. 5½ red oil	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
500 vis. No. 6 red oil	9.00 – 9.50	10.00	10.00

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	Dec. 19	Dec. 12	Dec. 5
Gasoline, U. S. Motor, 53-55 Gravity	6.00 – 6.50	6.00 – 7.00	6.00 – 6.50
Gasoline, U. S. Motor, blends and special cuts	7.00 – 8.00	7.00 – 8.00	7.00 – 8.00
Gas Oil, 30-34, per barrel	$1.05 –$1.10	$1.05 –$1.10	$1.05 –$1.10
Diesel Oil, 27 plus, per barrel	$0.85 –$1.00	$0.85 –$1.00	$0.85 –$1.00
Bunker oil, 14-18, per barrel	$0.80 –$1.00	$0.80 –$1.00	$0.80 –$1.00
Fuel oil, 14-18, per barrel	$0.75 –$1.00	$0.75 –$1.00	$0.75 –$1.00
Kerosene, 38-40 w.w., 125-150 flash, per gal.	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
Cased Goods			
Gasoline, U. S. Motor	$1.65 –$1.75	$1.70 –$1.80	$1.70 –$1.80
Kerosene, 38-40 w.w., 125-150 flash	$1.30 –$1.45	$1.35 –$1.50	$1.35 –$1.50

Crude Oil Prices, as Posted by Major

(Crude prices for years 1924-1925-1926 in

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District)	$2 80
Bradford District Oil in National Transit Lines (Bradford District)	2.80
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	2.65
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	2 65
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	2 60
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	2.35
Keister Grade in National Transit Lines (Butler Co.)	1.10
Cabell Grade in Eureka Pipe Lines (West Virginia)	1.50
Corning Grade in Buckeye Pipe Lines (Ohio)	1.55
Corning, O. heavy grade	1.45
*Somerset Oil in Cumberland Pipe Lines (Kentucky)	1.60
Ragland Grade in Cumberland Pipe Lines (Kentucky)	.95

*Somerset oil run prior to Oct. 1922, takes price of 6 cents lower than above quotations.

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines $1.50

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Effective March 14, 1927

Wooster	$1.57	Plymouth	$1.33
Lima	1.71	West. Kentucky	1.33
Waterloo	1.20	*Canadian Petro.	2 11
Indiana	1.48	*Oil Springs	2 18
Princeton	1 60	*Posted by Imperial Oil Ltd.	
Illinois	1.60		

OKLAHOMA, KANSAS And NORTH TEXAS

Prices of Prairie Oil & Gas Co.

(In Oklahoma, Kansas, North and East Central Texas)

Effective March 12, 1927

28-28.9	$1.12	35-35.9	$1.26
29-29.9	1.14	36-36.9	1.28
30-30.9	1.16	37-37.9	1.30
31-31.9	1.18	38-38.9	1.32
32-32.9	1.20	39-39.9	1.34
33-33.9	1.22	40-40.9	1 36
34-34.9	1.24	41-41.9	1.38
42-42.9	$1 40	48-48.9	$1.52
43-43.9	1 42	49-49.9	1 54
44-44.9	1 44	50-50.9	1.56
45-45.9	1 46	51-51.9	1 58
46-46.9	1 48	52 and above	1 60
47-47.9	1.50		

Above schedule met on March 12, by Gulf, Mid-Continent Pet. Corp., and Empire; by Carter, Humble and The Texas Co. on March 14.

Humble Oil & Refining Co. Prices
(Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

March 14, same schedule as Prairie in above fields, except these grades posted Nov. 16:

Below 25	$0.90	26-26.9	$1.08
25-25.9	1.06	27-27.9	1.10
Mirando, Tex.			$1 00

Magnolia Petroleum Co.
(In Oklahoma, Kansas and North and East Central Texas)

Effective Sept. 14, Magnolia posted same price schedule as Prairie in above fields, in Panola Co. and Iatan, Tex. district, except that Magnolia is paying $1.05 for all oil below 30 gravity.

Glasscock County	$0.80
Corsicana heavy	$1.00

Carter Oil Co.
(Oklahoma and Kansas)

March 14, same schedule as Prairie

PANHANDLE, TEXAS
Humble Oil & Refining Co

Effective Aug. 23

Hutchinson, Carson and Wheeler Counties $0.75
Pampa, Gray County, Effective March 14:

28-28.9	$ .80	37-37.9	$ .98
29-29.9	.82	38-38.9	1.00
30-30.9	.84	39-39.9	1.02
31-31.9	.86	40-40.9	1.04
32-32.9	.88	41-41.9	1 06
33-33.9	.90	42-42.9	1 08
34-34.9	.92	43-43.9	1 10
35-35.9	.94	44 and above	1 12
36-36.9	.96		

WEST TEXAS
Humble Oil & Refining Co.

Effective Aug 23

Crane, Upton, Crockett and Pecos Counties ... $0.60

NORTH LOUISIANA — ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton and De Soto

Effective March 14, 1927

Below 28	$1 10	40-40.9	$1 3(
28-28.9	1 12	41-41.9	1 38
29-29.9	1 14	42-42.9	1 40
30-30.9	1 16	43-43.9	1 42
31-31.9	1 18	44-44.9	1 44
32-32.9	1 20	45-45.9	1 46
33-33.9	1 22	46-46.9	1 48
34-34.9	1 24	47-47.9	1 50
35-35.9	1 26	48-48.9	1 5(
36-36.9	1 28	49-49.9	1.54
37-37.9	1 30	50-50.9	1 5(
38-38.9	1 32	51-51.9	1 5(
39-39.9	1.34	52 and above	1.6(

*Smackover, below 24	$0 85
* do 24 and above	1 00
Bellevue	1 25
Cotton Valley	.85
**Urania, La.	75
†East El Dorado	1 00

**Posted by Louisiana Oil Refining Corp

†Posted by Magnolia Petroleum Co

*Smackover prices posted on Nov. 21 by S. O La., Gulf, Shreveport-El Dorado Pipe Line, Atlantic Oil Producing Co. and Magnolia Pet Co.; on Nov 19 by La. Oil Refg. Corp.; on Nov. 23 by The Texas Co.

STEPHENS, ARKANSAS

Atlantic Oil Producing Co. and Louisiana Oil Refining Corp.

Below 28	$1 00	30-30.9	$1.06
28-28.9	1 02	31-31.9	1.08
29-29.9	1.04	32 and above	1.10

GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective March 14

Grades A	$1.20	29-29.9	$1.25
Grades B:		30-30.9	1.27
Below 25	1.15	31-31.9	1.29
25-25.9	1.17	32-32.9	1.31
26-26.9	1.19	33-33.9	1.33
27-27.9	1.21	34-34.9	1.35
28-28.9	1.23	35 and above	1.37

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling and Pierce Junction. All other fields are Grades A only.

California Refiners Withdraw From East Coast Fuel Market

LOS ANGELES, Dec. 16.—Refiners are asking 6 cents and up for export gasoline and from 7 to 8½ cents for tank car movement. Jobbers report that the market is stiff and not much price cutting going on.

Gasoline is being shipped to points outside the state in tank cars at 7 cents and better, while tank car movements to points within the state command 8 to 8½ cents, without tax. The fact that California gasoline has moved up half a cent at Baltimore and Philadelphia has had a good effect on local refiners.

For fuel oil spot movement, East coast is almost out of the picture. With fuel moving out of the Gulf at $1.05 and with a base price of $1.35 at New York harbor, California refiners are faced by the choice of cutting their prices or forgetting this business and they have chosen to let this business on the spot market go to other sellers. The tanker rate is around 60 cents against 18 to 19 cents from Gulf points to points North at Hatteras. These prices are for dirty bottoms. Clean boats to move gasoline are held from one to two cents higher per barrel. California is also pitted against Venezuela as the tanker rate from that country to points north of Hatteras is 19 cents, for dirty bottoms.

Fuel oil can still be purchased in California for tank car movement at 65 to 70 cents a barrel.

Gas oil market continues strong. Some California refiners are saving up this product to run through their cracking plants.

There is no change in the kerosene market. This kind of business is restricted to a few refiners. Cased goods prices continue about normal although it is reported that cased kerosene can now be bought at $1.30 to $1.45 against an old price of 5 cents more.

Although natural gasoline production is slightly in excess of requirement, fully 90 per cent of the production is contracted over a period, and the small amount in the spot market can be bought at 9 to 10 cents.

* * *

Los Angeles Shipments

LOS ANGELES, Dec. 16.—During week ended Dec. 10, twenty-six tankers left Los Angeles harbor to points outside of Pacific coast trade territory carrying 1,727,581 barrels of crude and other petroleum products or a daily average of 246,797 barrels. This compares with a total of 1,553,059 barrels or a daily average of 221,865 barrels for the previous week.

Purchasers, in All Fields (in Effect December 19)

OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

(Effective March 14)

Grades A	$1.20	*Grades B	$1.15
‡Grades B (light crude):			
35-35.9	$1.37	38-38.9	$1.43
36-36.9	1.39	39-39.9	1.45
37-37.9	1.41	40 and above	1.47

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on oil below 35° is same as Humble's postings on Grades B

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co. and Midwest Refining Co.

(Salt Creek prices effective March 12)

‡Salt Creek 29-29.9	$1.14
" " 30-30.9	1.16
" " 31-31.9	1.18
" " 32-32.9	1.20
" " 33-33.9	1.22
" " 34-34.9	1.24
" " 35-35.9	1.26
" " 36-36.9	1.28
" " 37 and above	1.30
Elk Basin	1.33
Grass Creek light	1.33
Big Muddy	$1.25
Lance Creek	1.33
Rock Creek	1.25
Mule Creek	1.30
Rex Lake	1.10
‡Osage	1.33
‡Cat Creek, Mont.	1.33
Sunburst, Mont.	1.35
‡Hogback, N. Mex.	1.38
Artesia, N. Mex.	1.00

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

The Texas Co. buys Salt Creek and Big Muddy crude.

CALIFORNIA

Standard Oil Co. of California

Santa Maria and Ventura Posted by Union Oil Co.

Gravity	Signal Hill Seal Beach Huntington Beach	Inglewood Torrance	Whittier La Habra	Newhall, McKittrick, Kern River	Olinda-Brea Canon, Richfield	Athens-Rosecrans Dominguez	Montebello	Coyote Hills	Santa Fe Springs	Midway Sunset Buena Vista & Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Santa Maria	Ventura
14-14.9	$ .85	$ .85	$ .85	$ .75	$ .85	....	$ .85	$ .85	....	$ .75	$ .75	$ .75	$ .75	$ .85	$ .85
15-15.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
16-16.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
17-17.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
18-18.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
19-19.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
20-20.9	.85	.85	.85	....	.85	....	.85	.85	....	.77	.77	.76	.76	.85	.85
21-21.9	.86	.86	.85	....	.86	....	.85	.86	.85	.79	.79	.77	.77	.85	.85
22-22.9	.87	.87	.85	....	.87	....	.85	.87	.85	.81	.81	.78	.78	.85	.85
23-23.9	.88	.88	....	....	.88	....	.85	.88	.85	.83	.83	.79	.79	.85	.85
24-24.9	.89	.89	....	....	.89	$ .89	.85	.89	.85	$ .85	.85	.80	.80	.85	.85
25-25.9	.90	.90	....	....	.90	.90	.86	.90	.86	.87	.87	.81	.81	.86	.86
26-26.9	.92	.92	....	....	.92	.92	.87	.91	.87	.89	.89	.83	.82	.87	.87
27-27.9	.94	.94	....	....	.94	.94	.88	.92	.88	.91	.91	.85	.83	.88	.88
28-28.9	.96	.96	....	....	.96	.96	.89	.93	.89	.93	.93	.87	....	.89	.89
29-29.9	.98	....	....	....	.98	.98	.90	.94	.91	.96	.96	.89	....	.91	.91
30-30.9	1.00	....	....	....	1.00	1.00	.91	.95	.93	.99	.99	.91	....	.93	.93
31-31.9	1.03	....	....	....	....	1.03	....	....	.95	1.02	1.02	.93	....	....	.95
32-32.9	1.06	....	....	....	....	1.06	....	....	.97	1.05	1.05	.95	....	....	.97
33-33.9	....	....	....	....	....	1.09	....	....	.99	1.08	1.08	.97	....	....	.99
34-34.9	....	....	....	....	....	1.12	....	....	1.01	....	1.11	.99	....	....	1.01
35-35.9	....	....	....	....	....	1.15	....	....	1.03	....	....	1.01	....	....	1.03
36-36.9	....	....	....	....	....	1.18	....	....	1.06	....	....	....	....	....	1.06
37-37.9	....	....	....	....	....	1.21	....	....	1.09	....	....	....	....	....	1.09
38-38.9	....	....	....	....	....	1.24	....	....	1.12	....	....	....	....	....	1.12
39-39.9	....	....	....	....	....	1.27	....	....	1.15	....	....	....	....	....	1.15
40-40.9	....	....	....	....	....	1.30	....	....	....	....	....	....	....	....	....
41-41.9	....	....	....	....	....	1.33	....	....	....	....	....	....	....	....	....
42-42.9	....	....	....	....	....	1.36	....	....	....	....	....	....	....	....	....

*Union Oil Co. also purchases Long Beach Crude and is maintaining the same gravity and price schedule in that field as the Standard maintains in Signal Hill and Huntington Beach fields. The Union also buys and pays the same prices as the Standard in the Rosecrans-Dominguez fields, on gravities ranging from 14 degrees to and including 24.9 degrees and in Santa Fe Springs, on gravities ranging from 20 to and including 23.9 degrees.

Total movement included 296,360 barrels of crude, 881,773 barrels of fuel, 416,469 barrels of gasoline, 42,302 barrels of Diesel and 90,675 barrels of distillate. Atlantic domestic points drew 162,914 barrels of crude, 233,026 barrels of gasoline and all of the distillate. Products going to Atlantic foreign included 403,552 barrels of fuel, 116,426 barrels of gasoline and 25,427 barrels of Diesel. Remainder of total movement went to Pacific foreign.

Crude Price Changes

OIL CITY.—On Dec. 17 Joseph Seep Purchasing Agency posted another 5 cent advance on Pennsylvania crude, just two weeks after its first advance since Jan. 14. The Dec. 17 advance was 5 cents on all Pennsylvania grade crude, except Macksburg, O. district, which was advanced 10 cents, and Keister, which is unchanged. New prices are: Bradford-Alleghany districts, in New York Transit and National Transit lines, $2.80; rest of Pennsylvania, $2.65; Pennsylvania grade in West Virginia (Eureka lines), $2.60; and Macksburg, O. district in Buckeye lines, $2.35. Prices of other eastern crudes were unchanged on this date.

* * *

OIL CITY.—On Dec. 19 Joseph Seep Purchasing Agency advanced Corning, O. crude 10 cents per barrel, making heavy grade $1.45, and other Corning $1.55. Last previous change was a 10 cent cut on Apr. 18.

Marland Moves Wholesale Office

HOUSTON, Dec. 16.—F. A. Howard, sales manager of the Texas-Louisiana division of the Marland Refining Co., announces removal of wholesaling offices for the two states from Texas City, Texas, to 1817 W. T. Waggoner bldg., Fort Worth.

LOS ANGELES, Dec. 16.—John M. Wilson of Pittsburgh, president of the National Supply Companies, is in Los Angeles this week conferring with officials of the National Supply Co. of California. He is accompanied by his wife.

(*Continued from Page* 104)

oils was reported relatively firm. The posted price of Grade C for bunkering at Tampico was unchanged at $1.35 and buyers have been obtaining the bulk of their requirements at the Gulf. The posted price of heavy Panuco also was unchanged at $1.10; the last business closed was taken at $1.12.

The demand for waxes was negligible this week. The active buying by Southern American consumers early this month is reported to have relieved stocks at the Gulf considerably and current prices were generally unchanged. White crude scale was quoted largely at 2.625 cents a pound with fully refined goods approximately 1-cent a pound higher.

Gulf Coastal Lubes Firmer

HOUSTON, Dec. 19.—Gulf Coastal lubricant markets are firmer than they have been in recent weeks, at unchanged prices. Demand shows some improvement both from domestic jobbing and export purchasers.

U. S. Shows Petroleum Products Cheaper Than Other Needs

CLEVELAND, Dec. 17

THE 1926 American dollar would have bought $1.50 worth of petroleum products in November, 1927, if the average prices of 1926 are considered as normal, the U. S. Bureau of Labor Statistics has announced in its monthly index of wholesale prices. The 1926 dollar would have purchased only 98.5 cents worth of food and 87.5 cents worth of hides and leather.

Of almost 50 items for which price comparisons are given, relative price of petroleum products has been lowest this year. The index of 550 commodities for November, taking 1926 average as 100, was 96.7, giving the 1926 dollar a purchasing power of $1.034. Index of petroleum products was 66.6. The bureau says this in its review:

"A slight reaction from the recent movement of wholesale prices is shown for November by information collected in representative markets. The bureau's revised index number, computed on prices in the year 1926 as the base and including 550 commodities or price series, stands at 96.7 for November, as compared with 97.0 for the month before, a decline of nearly 1/3 of 1 per cent. Compared with November, 1926, with an index number of 98.4, a decrease of 1¾ per cent is shown.

"Farm products again showed a slight decline from the preceding month, due mainly to decreases in corn, hogs, lambs, calves, cows, cotton, peanuts and onions. Beef steers, eggs and wool, on the other hand, averaged higher than in the preceding month.

"Foodstuffs rose slightly in price, with minor increase reported also for hides and leather products, chemicals and drugs, and housefurnishing goods. No change in the general price level is shown for the group of miscellaneous commodities, while small decreases took place among textile products, fuel and, lighting materials, metal products, and building materials.

"Of the 550 commodities or price series for which comparable information for October and November was collected, increases were shown in 157 instances and decreases in 154 instances. In 239 instances no change in price was reported.

"Comparing prices in November with those of a year ago, as measured by changes in the index numbers, it is seen that farm products and hides and leather products were considerably higher, while foods and textile products were slightly higher. Decreases are shown for all other groups of commodities, ranging from less than ¼ of 1 per cent in the case of housefurnishing goods to 9¾ per cent in the case of building materials, and over 19 per cent in the case of fuel and lighting."

Index numbers of 550 commodities as a whole and chief commodities follow:

(1926 = 100.0)

	1926, Nov.	1927—Nov.	1927—Purchasing power of the 1926 dollar in Nov. (Cents)
ALL COMMODITIES	98.4	96.7	103.4
Petroleum products	94.1	66.6	150.2
Grains	93.6	99.6	100.4
Livestock and poultry	93.3	100.8	99.2
All foods	100.5	101.5	98.5
Butter, cheese and milk	104.5	108.3	92.3
Meats	99.0	100.9	99.1
Other foods	99.9	99.1	100.9
Hides and skins	103.2	131.6	76.0
Leather	99.4	117.1	85.4
Boots and shoes	99.8	106.3	94.1
Cotton goods	95.4	104.6	95.6
Silk and rayon	94.7	83.6	119.6
Woolen and worsted goods	98.5	98.1	101.9
Anthracite coal	98.8	96.9	103.2
Bituminous coal	116.8	97.8	102.2
Coke	106.2	92.7	107.9
Iron and steel	100.2	93.5	107.0
Nonferrous metals	98.8	90.3	110.7
Agricultural implements	100.0	98.9	101.1
Automobiles	102.3	102.2	97.8
Lumber	100.2	89.2	112.1
Brick	97.5	91.3	109.5
Cement	99.4	96.5	103.6
Structural steel	102.1	89.4	111.9
Paint materials	100.5	85.7	116.7
Chemicals	97.9	102.3	97.8
Drugs and pharmaceuticals	101.0	85.2	117.4
Fertilizer materials	98.0	94.9	105.4
Fertilizers	100.0	92.9	107.6
Furniture	99.5	97.2	102.9
Furnishings	98.9	100.0	100.0
Cattle feed	97.6	122.4	81.7
Paper and pulp	92.1	91.3	109.5
Rubber	82.0	77.8	128.5
Automobile tires	83.6	71.2	140.4

New York Bonds

Week Ending Dec. 16

	High	Low	Last	Ch'ge
Amer. Reb. deb. 6s	102¼	102	102¼	+ ⅛
Assoc. Oil gold 6s	103¼	102⅞	103¼	+ ⅛
Atlantic Refg. deb. 5s	102⅜	101¾	102⅜	+ ⅛
Barnsdall Corp. 6s	100¾	100	100½	0
Barnsdall Corp. 6s ex-war	90	89⅝	89⅝	— ⅞
Cal. Pet. 5s	96	95¾	96	0
Cal. Pet. 5½s	100½	100	100½	+ ⅜
General Asphalt 6s	108¾	108¼	108¾	+ ⅝
General Pet. 5s	102¼	102	102	— ¼
Humble Oil & Refg. 5½s	103	102⅞	102⅞	+ ⅛
Humble Oil 5s	100⅜	100⅛	100⅛	— ⅛
Mid-Cont. Pet. 6½s	105¼	105	105¼	+ ¼
Pan Amer. P & T 7s	105½	105½	105½	+ ⅛
Pan Amer. P & T 6s	103	102¾	103	+ ¼
Pan Amer. P & T 6s	95¼	93¼	93¼	—2¼
Pierce Oil deb. 8s	104¼	104¼	104¼	+ ¼
Simms Pet. cvt. 6s	107⅛	105	107⅛	+2⅛
Sinclair Con. Oil Col. 7s	100	98⅜	100	+1½
Sinclair Con. Oil Con. 6½s	95⅞	94	95¾	+1½
Sinclair Con. Oil 6s D	97¼	96¼	97	+ ½
Sinclair Crude Oil 6s	100¼	100	100¼	+ ⅛
Sinclair Pipeline 5s	93⅜	93¼	94½	+ ½
Skelly Oil 5½s	95¼	94¾	94⅞	+ ⅛
S. O. of N. Y. 4½s	97½	97¼	97⅜	0
S. O. of N. J. deb. 5s	103¾	103¼	103½	+ ¼
Superior Oil 7s	101⅛	101⅛	101⅛	0
Union Oil of Calif. 6s-A	109½	109½	109½	— ⅜
Union Oil of Cal. 1st 5s	101¾	101¾	101¾	0
Union Oil of Cal. 5s C	99⅞	99¾	99⅞	+ ⅛
White Eagle 5½s	95½	94½	94½	+1⅜

Magnolia Pipe Line Runs For November

Houston, Dec. 12—Magnolia Petroleum Company, pipeline department, announces from Dallas headquarters the following crude oil runs for November, which are shown in comparison with October.

	October	November
Hewitt-Graham	145,387.25	132,604.00
Healdton	236,505.96	223,562.39
Cushing	140,483.65	128,980.09
Yale	61,046.95	57,866.22
Cement	.....	.....
Duncan	54,826.65	49,447.90
Augusta	47,881.30	44,197.49
Walters-Beaver Creek	8,085.74	8,019.79
Burbank	120.76	85.27
Wewoka	1,418,845.85	1,006,183.51
Seminole	145,966.64	105,408.81
Total Okla.-Kans.	2,259,150.75	1,756,355.47
Archer	50,543.45	45,658.80
Burkburnett	80,797.89	78,189.37
Coleman	.....	.....
Comanche	20,750.07	19,358.87
Electra	102,537.22	98,137.17
Corsicana Heavy	9,745.48	8,972.19
Corsicana Light	15,973.28	14,000.54
Henriette	3,365.05	3,795.78
Iatan	38,065.27	.....
Luling	388,882.82	382,736.45
Lytton Springs	39,480.28	41,246.29
Mexia-Wortham	40,633.22	38,193.99
Mirando	78,769.82	75,916.43
Olden	12,010.73	10,477.08
Panhandle	135,012.28	153,485.61
Panola	1,443.18	1,348.85
Stephens	11,375.77	9,520.93
Thrall	1,118.25	1,233.63
Gulf Coast	3,049.10	1,338.13
Crane-Upton	138,289.67	156,866.62
Glasscock County	.....	14,046.14
Total Texas	1,171,842.83	1,154,522.87
Haynesville	2,719.87	2,308.97
Bull Bayou	43,282.23	46,141.33
Cotton Valley	33,388.15	34,634.82
Pine Island	38,018,57	34,083.95
Total Louisiana	117,408.82	117,169.07
El Dorado Light	27,585.33	27,233.12
East El Dorado	1,786.67	1,817.73
Smackover	110,222.18	104,460.19
Total Arkansas	139,594.18	133,511.04
GRAND TOTAL	3,687,996.58	3,161,558.45

OKLAHOMA - KANSAS

Report for November		Daily Average
Runs	2,045,554	68,185
Shipments	1,837,349	61,245
Total Stock	6,946,641	.....

TEXAS

Wichita, Wilbarger, Archer	Runs	223,903	7,463
	Shipments	320,038	7,735
Petrolia	Runs	3,796	126
	Shipments	3,796	126
Eastland, Stephens	Runs	39,357	1,312
	Shipments	.....	....

TOTAL STOCK 197,523.00—North Central Texas Field.

New York Curb Bonds

Week Ending Dec. 16

	High	Low	Last	Ch'ge
Beacon Oil 6s '36	101¼	101	101¼	— ¼
Cities Service 5s '66	91	90½	91	+ ⅜
Cities Service 6s '66	103¾	103	103⅛	+ ⅛
Cities Service 5½s '42	95¼	95	95¼	0
Empire Oil 5½s '42	94¼	93⅞	94	— ¼
Galena Stan Oil 7s '30	90½	89¼	90½	+ ⅝
Gulf Oil 5s '37	101½	101⅛	101⅛	— ⅜
Independent Oil 6s '39	95¾	95	95¾	+1
Phillips Pet. 5¼s '39	95⅛	95	95	0
Richfield Oil 6s '41	98¾	96½	98¾	+3
S. O. of N. Y. 6½s '33	104¼	104	104¼	0
Sun Oil 5½s '39	102	101¾	102	+ ¼
Trans. Con't. Oil 7s '30	115½	113¾	113¾	—1¾
Valvoline 7s '37	106	104⅛	106	+1⅛
Warner-Quin. 6s '42	102	101	101½	+ ½

TULSA, Dec. 19.—Lloyd F. Bayer, vice president of the Associated Oil Co. in charge of refining operations, is spending his vacation in Tulsa where he made his home for a number of years while connected with the Tidal Refining Co.

Transactions in Oil Shares on New York Stock Exchange

1926 High	1926 Low	1927 High	1927 Low		Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Sales	Week Ended Dec. 17 First	High	Low	Last	Change
32⅞	24¼	37⅝	27⅝	(sh)	916,675	N.P.	Amerada Corp.	50cQ	Oct. 30, 27	8,700	29⅝	30½	29⅛	30	+ ⅞
74	39⅞	76¼	35½	(sh)	209,180	N.P.	American Republics	.....	.....	35,900	73	76¼	71	71½	+ 1½
59½	44¾	50¼	38⅝	$	56,000,000	$25	Associated Oil	50cQ	Dec. 24, 27	320	39	42	38¾	42	— 2⅜
128⅜	97	131⅜	106¾		50,000,000	100	Atlantic Refining	$1Q	Dec. 15, 27	22,100	106¾	111	†106¾	109	+ 3
120	115½	118½	111½		20,000,000	100	do pfd	$1.75Q	Nov. 1, 27	100	117	117	117	117	— ⅛
33½	23½	35½	20¾		25,000,000	25	Barnsdall Corp. A	s62½cQ	Nov. 15, 27	23,700	24⅞	25½	24¼	25¼	+ ½
29½	22⅛	32½	20½		3,842,400	25	do B	s62½cQ	Nov. 15, 27	300	24½	24½	24½	24½	+ ¾
68⅛	29¾	32⅞	20		51,523,950	25	California Petroleum	25cQ	Dec. 1, 27	24,800	22½	24⅜	22½	24	+ 1½
94¼	50	96¾	65		24,355,000	100	General Asphalt	.....	.....	21,500	76	81½	76	80½	+ 4
140½	94⅞	144⅞	107¼		6,874,200	100	do pfd	$1.25Q	Dec. 1, 27	100	123½	123½	123½	123½	+ 5½
72	50¼	175⅜	60⅛		25,000,000	100	Houston Oil	.....	.....	27,900	155½	159½	152	159	+ 4⅞
84	19⅝	32⅜	17⅝	(sh)	500,000	N.P.	Independent Oil & Gas	25cQ	Oct. 31, 27	10,300	26¾	26⅞	25¼	26⅜	— ⅛
13¾	7¼	12⅛	7½	$	3,280,340	$10	Indian Refining	.....	Dec. 15, 20	2,300	8⅜	8⅞	8⅜	8½	— ⅛
12½	8	12	7¼		4,550,110	10	do ctfs	.....	.....	900	8⅛	8¼	8	8	— ⅛
104	90	112	99		2,296,400	100	do pfd	.....	Dec. 15, 21	.....	.....	.....	.....	.....	.....
24½	19⅛	36⅞	20½	(sh)	3,992,067	N.P.	Lago Oil & Transport	75cQ	Aug. 1, 27	12,200	33	34⅞	32½	34⅜	+ 1¾
19⅞	12	18⅛	10	(sh)	1,131,290	N.P.	Louisiana Oil Refining	.....	.....	26,200	10⅛	10⅝	10⅛	10½	+ ⅜
98	93	97	85¼	$	4,000,000	$100	do pfd	$1⅝Q	Nov. 15, 27	270	88	88½	88	88¼	+ ½
28⅞	16½	22¾	12	(sh)	330,000	N.P.	Maracaibo Oil	.....	.....	3,800	15¼	15¼	14½	15	+ ¼
63⅜	49¼	58½	31	(sh)	2,316,401	N.P.	Marland Oil Co.	.....	Mar. 31, 27	54,300	33½	35⅜	33¼	35⅜	+ 2
250	225	250	200	$	45,942,800	$100	Mexican Petroleum	$3Q	Oct. 20,	100	225	225	225	225	+53
.....	.....	.....	.....		12,000,000	100	do pfd	$2Q	Oct. 20, 27	.....	.....	.....	.....	.....	.....
13¾	6	9¼	3	(sh)	945,839	N.P.	Mexican Seaboard	.....	Nov. 15, 24	1,600	5	5¼	4¾	5	0
37	27½	39⅜	25½	(sh)	1,357,800	N.P.	Mid-Continent Petroleum	.....	Aug. 1, 27	20,600	27½	28⅜	27⅛	28	+ ⅜
104¼	90	105	97	$	6,718,000	$100	do pfd	$1.75Q	Dec. 1, 27	.....	.....	.....	.....	.....	.....
2½	¾	3¾	1⅝		24,435,000	10	Middle States	.....	July 1, 23	6,900	2⅛	2¼	2	2¼	+ ¼
1⅜	½	2¾	1⅛		5,356,660	...	do ctfs	.....	.....	4,100	1½	1½	1⅜	1½	0
2¼	1	1⅞	1	(sh)	3,500,000	N.P.	Pacific Oil	.....	.....	1,230	1⅜	1¼	1⅜	1⅜	0
76½	56½	65⅞	43¼	$	48,807,500	$ 50	Pan American P. & T.	$1Q	Oct. 20, 27	7,900	45⅛	45¾	43½	44½	+ ¾
78⅜	56⅞	66⅜	43½		121,094,850	50	do B	$1Q	Oct. 20, 27	59,400	43⅞	45½	43⅝	44	0
46	30	37⅞	16¾	(sh)	400,000	N.P.	Pan American Western B.	.....	Jan. 30, 27	8,500	19¾	21	19⅝	20½	+ 1¼
62	4½	18⅞	8	(sh)	198,770	N.P.	Panhandle P. & R.	.....	.....	23,800	14½	17⅞	14½	16⅞	+ 2⅛
99⅜	51	83¾	58¾	$	2,935,200	$100	do pfd	.....	July 2, 23	100	78	78	78	78	— 2⅛
57⅜	40	60¼	36½	(sh)	2,406,796	N.P.	Phillips Petroleum	75cQ	Oct. 1, 27	62,900	41	42⅛	39¾	41	+ ¼
1⅞	⅛	1⅜	⅛	$	29,622,925	$ 25	Pierce Oil Corp.	.....	.....	3,500	⅝	¾	½	⅝	0
27⅛	11½	24	13½		15,000,000	100	do pfd	.....	Feb. 1, 22	.....	.....	.....	.....	.....	.....
7	2¼	5½	2½	(sh)	2,500,000	N.P.	Pierce Petroleum	.....	.....	4,900	3½	3½	3⅛	3⅛	— ⅜
20¾	11	33⅛	16¾	1	37,450,850	$50	Producers & Refiners	.....	Sept. 15, 23	6,400	25	26⅜	24½	25¾	+ ⅜
41¾	30¾	50	36⅞		2,845,350	50	do pfd	.....	May 1, 25	.....	.....	.....	.....	.....	.....
31	25¼	33¼	25		75,939,250	25	Pure Oil Co.	37½cQ	Dec. 1, 27	12,600	25¾	26½	25⅝	25⅛	— ⅜
112¾	106	115½	111⅜		13,000,000	100	do 8% pfd	$2Q	Oct. 1, 27	100	112	112	112	112	— ⅜
57⅜	47⅜	58	45	(sh)	616,605	13.40	Royal Dutch, N. Y. shares	$1.80	Aug. 2, 27	3,400	47¾	47⅞	47	47½	— ½
40⅝	40½	47⅞	41¾	(sh)	78,389	F2	Shell Transport & T.	$1.45	July 22, 27	200	42½	42½	42½	42½	— 1¼
31	24	31¾	24⅝	(sh)	10,000,000	N.P.	Shell Union Oil	35cQ	Sept. 30, 27	8,300	25⅞	25⅞	25¾	25¾	+ ⅜
114	103	111	107½	$	18,350,400	$100	do pfd	$1½Q	Nov. 15, 27	.....	.....	.....	.....	.....	.....
28⅝	15⅛	25¼	14¼		7,208,080	10	Simms Petroleum	.....	Apr. 1, 27	16,900	23⅜	*25¼	23½	25¼	+ 1½
24⅞	16¾	22⅜	15	(sh)	4,501,339	N.P.	Sinclair Consolidated	.....	May 31, 24	87,600	17	21⅜	16⅞	21	+ 4
99½	90	103¼	97	$	16,907,000	$100	do pfd	$2Q	Nov. 15, 27	1,000	99⅞	103⅞	99⅛	103⅞	+ 3⅞
37⅛	26⅝	37⅜	24⅛		27,396,590	25	Skelly Oil Co.	50cQ	Dec. 15, 27	9,000	25⅞	26⅝	25	26⅜	+ ⅜
63⅝	52⅝	60¾	50⅝	(sh)	13,016,434	N.P.	S. O. California	62½cQ	Dec. 15, 27	7,300	54⅜	55¼	54½	55¼	+ ⅜
46⅜	37⅜	43⅜	35½	$	606,243,050	$25	S. O. New Jersey	‡25cQ	Dec. 15, 27	21,800	39½	39⅞	39¼	39⅜	+ ⅛
33½	32½	34⅛	29¾		424,348,275	25	S. O. New York	40cQ	Dec. 15, 27	33,800	31⅜	31⅝	31⅛	31½	+ ½
41⅝	30⅛	34⅞	30	(sh)	1,171,508	N.P.	Sun Oil	‡25cQ	Dec. 15, 27	2,900	31	32	30⅞	32	+ 1¼
...	...	101⅝	99	$	5,000,000	$100	do pfd	$1.50Q	Dec. 1, 27	100	100¾	100¾	100¾	100¾	0
5¼	1	6½	3⅛	(sh)	1,121,368	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	2,000	3¼	3⅜	†3⅛	3¼	0
57⅞	53⅛	58	45	$	180,428,225	25	The Texas Corp.	75cQ	Oct. 1, 27	26,600	52½	53⅞	52⅜	53	+ ½
19½	12	18⅞	12		8,380,340	10	Texas Pacific Coal & Oil	15c	Sept. 30, 27	14,200	13½	14⅜	13⅛	14⅜	+ 1⅜
39¼	37	29⅛	19	(sh)	2,168,264	N.P.	Tide Water Oil Co.	20cQ	Sept. 30, 27	5,000	22½	23	22	23	+ ¾
103	87¼	90⅛	85	$	20,705,200	$100	do 5½ pfd	$1.25Q	Nov. 15, 27	1,200	87½	87⅞	86¼	87⅞	— ⅛
....	....	19⅛	15⅜	(sh)	4,795,934	N.P.	Tide Water Associated	.....	Aug. 1, 27	39,000	16⅛	17¼	16	17¼	+ 1¼
....	....	90¾	85	$	72,795,900	100	do pfd	$1.50Q	Oct. 1, 27	2,800	88½	90	88¼	88¼	+ 1¼
5½	3	10¼	3¾	(sh)	3,742,029	N.P.	Transcontinental Oil	.....	.....	59,200	9⅜	9½	9	9½	+ ⅛
58⅜	37¼	56½	39⅝	$	40,759,475	$25	Union Oil of California	50cQ	Nov. 10,27	17,300	42⅝	45½	42½	45¼	+ ¾
120⅜	84¼	123½	94		30,734,000	100	Union Tank Car Co.	$1.25Q	Dec. 1, 27	600	121½	*123½	121½	123	+ 2½
....	....	34½	24½	(sh)	240,000	N.P.	Warner Quinlan	50cQ	Oct. 1, 27	26,800	34⅜	34⅜	31⅜	31⅜	— 2¼
29¾	25⅛	27½	21	(sh)	490,000	N.P.	White Eagle Oil & Refining	50cQ	Oct. 20, 27	2,500	21½	22	†21	21⅜	— ⅛

*New High †New Low xEx-Dividend ‡Also extras s-Stock Total Sales 889,820

Cleveland Stock Market

December 16

	Par Value	Bid	Asked	Last Sale
Canfield Oil Co.	100	...	...	...
do pfd	100	100¼	...	100
Fred G. Clark	10	2	3½	2
National Refining Co.	25	34¼	36	34½
do pfd	100	x130	...	132
Paragon Refining Co.	25	...	9½	9½
do pfd	100	105	107½	107½

x Ex-Dividend

Oil Dividends

	Amount	Payable	Stock of Record
British-American Oil q.	20c	Jan. 3	Dec. 14
do extra	20c	Jan. 3	Dec. 14
Gulf Oil q.	37½c	Jan. 1	Dec. 20
Independent O & G q.	25c	Jan. 30	Jan. 16
Lone Star Gas q.	50c	Dec. 31	Dec. 20
Lion Oil Refg. q.	50c	Jan. 27	Dec. 30
Mountain & Gulf q.	2c	Jan. 16	Dec. 31
do extra	1c	Jan. 16	Dec. 31
New England Fuel q.	25c	Jan. 3	Dec. 20
Prairie Pipe Line q.	$2.50	Jan. 31	Dec. 31
Shaffer Oil pfd. q.	$1.75	Jan. 25	Dec. 31
Washington Oil q.	$1	Dec. 20	Dec. 15
North American Car q.	62½c	Jan. 1	Dec. 23

PITTSBURGH STOCK EXCHANGE

1926 High	1926 Low	1927 High	1927 Low	Par Value	Stocks	Transactions Sales	Week Ended Dec. 16 First	High	Low	Last	Ch'ge
8½	5¾	9⅞	6⅞	$ 10	Arkansas Nat. Gas.	2,995	9¼	9¼	x9	9¼	— ⅛
90½	79¾	98⅝	80⅞	100	Columbia Gas	.....	.....	.....	.....	.....	.....
101⅜	95	107¾	100	100	do pfd	.....	.....	.....	.....	.....	.....
17	12½	15	7½	10	Devonian Oil	100	7½	7½	7½	7½	0
116½	112	117½	115	100	Duquesne Lt. 7% pfd.	45	116½	116½	115	115	— 2
10	5⅛	12¼	6	N.P.	Houston Gulf Gas.	200	11½	11½	11¼	11¼	— ⅛
46	39	59¼	37¼	$25	Lone Star Gas	4,047	55½	55½	54	54½	— ¾
47⅜	33⅛	22¾	22¼	25	Ohio Fuel Corp.	.....	.....	.....	.....	.....	.....
47½	42	21⅝	21	...	do ctfs	.....	.....	.....	.....	.....	.....
6¾	5	6	5	...	Ohio Oil & Gas	.....	.....	.....	.....	.....	.....
34	21	21	21	25	Oklahoma Nat. Gas.	.....	.....	.....	.....	.....	.....
21	19¼	23⅝	20¼	...	do ctfs	.....	.....	.....	.....	.....	.....
5⅜	3½	3⅞	3	5	Pittsburgh Oil & Gas	1,256	3¼	3½	3¼	3½	+ ¼
10	7½	8	5½	10	Salt Creek Cons.	35	6½	6½	6½	6½	0
27	8	26½	17	10	Tidal Osage	100	21	21	21	21	— 2
45	40	43	33	N.P.	Waverly Oil Wks. "A"	50	33½	33½	33½	33½	0

PITTSBURGH CURB EXCHANGE

1926 High	1926 Low	1927 High	1927 Low	Par Value	Stocks	Transactions Sales	Week Ended Dec. 16 First	High	Low	Last	Ch'ge
3⅜	2½	3½	2¾	$ 5	Columbia Synd.	.....	.....	.....	.....	.....	.....
20	.06	.18	.18	5	Duquesne Oil	.....	.....	.....	.....	.....	.....
....	....	....	....	....	Forest Oil	.....	.....	.....	.....	.....	.....
91½	85	95	88	25	Gulf Oil Corp.	.....	.....	.....	.....	.....	.....
79	79	105	93	100	Houston Gulf Gas pfd.	.....	.....	.....	.....	.....	.....
12	7½	10¾	5½	N.P.	Leonard Oil & Dev.	15,000	5½	5¾	†5½	5½	— ⅛
30¼	29	32	31¼	$ 25	Oklahoma Gas	.....	.....	.....	.....	.....	.....
2	.15	2.70	.45	10	Omar Oil & Gas	3,100	.75	.75	.65	.65	— .05
....	....	97⅞	97⅞	....	Penn. Oil & Gas	.....	.....	.....	.....	.....	.....
....	....	2¼	1¾	....	Pittsburgh Oil Dev.	.....	.....	.....	.....	.....	.....
2	1¾	2¼	2¼	5	do pfd	.....	.....	.....	.....	.....	.....
33½	20	31	19	10	Plymouth Oil	875	22½	23	22½	22¾	— ¾
....	....	....	....	....	do pfd	.....	.....	.....	.....	.....	.....
7	3	6	5	5	States Oil	.....	.....	.....	.....	.....	.....
3½	2	3⅛	1½	1	Texon Oil & Land	1,100	2⅝	2¾	2⅝	2¾	— ⅛
25¾	8	23¾	18	10	Tidal Osage (non-vtg)	.....	.....	.....	.....	.....	.....

*New high †New Low xEx-Dividend

Standard Oil Stock Traded in New York

1926 High	1926 Low	1927 High	1927 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Dec. 17 Sales	First	High	Low	Last	Change
21	16¾	21¾	17¾	£ 4,000,000	£1	Anglo-American Oil	60⅓c	May 31, 27	400	19⅜	19⅜	19	19	— ⅜
20¼	16½	20½	17⅜	.....	£1	do ctfs. non-voting	.....	.....	200	18⅜	18⅞	18⅜	18⅞	+ ¼
2¼	.75	3¾	.75	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	300	1⅜	1⅜	1⅜	1⅜	0
5	2⅛	6½	2½	$ 000,000	$ 10	do pfd.	.....	.....	.....	.....	.....	.....	.....	.....
75	65	69	50	1,000,000	25	Borne Scrymser	‡$1S.A.	Oct. 15, 27	100	57	57	57	57	— 2
59½	42	60	45	10,000,000	50	Buckeye Pipe Line	$1Q	Dec. 15, 27	200	57	57	57	57	0
82½	65	126	76½	3,000,000	25	Chesebrough Mfg.	$1Q	Sept. 30, 27	100	119⅞	119⅞	119⅞	119⅞	+ 2¼
25⅞	17½	22⅝	16¼	38,805,260	10	Continental Oil	25cQ	Sept. 15, 27	11,000	18½	18½	18¼	18½	+ ⅛
137	102	137	89	3,000,000	100	Cumberland Pipe Line	$2Q	Dec. 15, 27	.....	.....	.....	.....	.....	.....
63¾	43	68½	47	5,000,000	100	Eureka Pipe Line	$1Q	Nov. 1, 27	.....	.....	.....	.....	.....	.....
32½	9⅜	13½	6	16,000,000	100	Galena Signal Oil	.....	June 30, 25	400	4½	5⅜	4½	4½	— ½
94½	35	59¾	25	4,000,000	100	do new pfd.	.....	June 30, 26	30	30	30	29	30	+ 1
97½	40	60⅛	36	2,000,000	100	do old pfd.	.....	June 30, 26	50	41	41	40½	40½	— 4½
99⅝	52	68¼	54	73,117,577	25	Humble Oil & Refining	‡30cQ	Oct. 1, 27	4,800	65	65¾	64½	65⅛	+ ⅜
144½	125¼	182	123¾	20,000,000	100	Illinois Pipe Line	$6S.A.	Dec. 15, 27	800	176½	186¼	176½	180	+ 3
39¾	32½	64¾	37¾	(sh) 6,491,952	N.P.	Imperial of Canada	‡25cQ	Dec. 1, 27	2,600	60	61½	60	60	0
70	54¼	94½	61	$ 5,000,000	$50	Indiana Pipe Line	‡$1Q	Nov. 15, 27	300	76¾	77¾	76	76	+ ½
35¼	28¾	39	28	(sh) 7,118.138	N.P.	International Petroleum	25c	Nov. 15, 27	39,000	37½	37⅝	35⅝	36⅛	— 1¼
20⅜	12½	24	13½	$ 6,362,500	$12½	National Transit Co.	25cQ	Dec. 15, 27	1,200	20¾	22¼	20⅝	22¼	+ 2¼
51½	27⅜	44½	31¼	5,000,000	100	New York Transit	.....	July 15, 26	400	37¼	38½	37¼	38½	— 2
80½	64	100	70	4,000,000	100	Northern Pipe Line	$3S.A.	July 1, 27	50	92¾	92¾	92¾	92¾	— 7
67⅝	55¾	67⅞	52	60,000,000	25	Ohio Oil Co.	‡50cQ	Dec. 15, 27	7,800	64	66	63¾	66	+ 1¾
24⅜	15	38½	12	10,000,000	25	Penn Mex. Fuel	.....	May 21, 25	1,300	32¾	33¼	32½	33¼	+ 1
60¼	48	55½	45⅝	60,000,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	8,100	48⅝	49	48¼	49	+ ¼
137½	122¼	190	132	81,000,000	100	Prairie Pipe Line	$2.50Q	Oct. 31, 27	2,200	182½	186	182	183	— 2
220	184½	201½	175½	4,000,000	100	Solar Refining	$5S.A.	Dec. 20, 27	20	175½	175½	175½	175½	— 4½
27	21	27¼	15½	5,000,000	50	Southern Pipe Line	$2	Dec. 1, 27	.....	.....	.....	.....	.....	.....
50	34½	41½	34½	20,000,000	25	South Penn Oil	50cQ	Sept. 30, 27	1,900	37¼	37¼	37	37	— 1
57	49	111½	111⅜	3,500,000	100	South West Pa. Pipe Lines	$1Q	Oct. 1, 27	.....	.....	.....	.....	.....	.....
70½	60½	81½	64¾	228,415,463	25	S. O. Indiana	‡62½cQ	Dec. 15, 27	14,000	77⅜	80⅜	76¾	80⅜	+ 2⅞
36½	16½	20¾	15½	8,000,000	25	S. O. Kansas	.....	June 16, 24	400	15½	15¾	15½	15½	+ ⅛
134¾	108	130	111½	17,012,599	25	S. O. Kentucky	$1Q	Sept. 30, 27	1,000	123	124⅜	122½	122½	— ¾
51½	42	49½	40	4,559,850	25	S. O. Nebraska	62cQ	Dec. 20, 27	900	41¾	41¾	40	41	— 1
672	288	863¼	73	14,000,000	25	S. O. Ohio	62½cQ	Oct. 1, 27	900	77	77	76½	77	— ¾
120½	116½	122	117¼	7,000,000	100	do pfd.	$1.75Q	Dec. 1, 27	100	119	119	119	119	— 1
23	15½	21	14½	861,466	25	Swan Finch Co.	.....	Nov. 1, 19	.....	.....	.....	.....	.....	.....
109¾	90¼	149⅞	95⅛	62,470,800	25	Vacuum Oil	‡50cQ	Dec. 20, 27	7,000	144	145⅝	140½	142¾	— 1¼

*New high †New low xEx dividend ‡Also extras.

LOS ANGELES, Dec. 16.—M. L. Moore of Pittsburgh, assistant to the president of the Oil Well Supply Co. accompanied by his wife is spending December and probably part of January in Los Angeles at headquarters of the Oil Well Supply Co. of California.

STANDARD OIL ISSUES

CONTINENTAL OIL COMPANY

10-YEAR 5¼% DEBENTURES

FOR INVESTMENT

CARL H. PFORZHEIMER & CO.

Specialists in Standard Oil and Miscellaneous Oil Securities

25 Broad Street New York

New York Curb Market

1926 High	1926 Low	1927 High	1927 Low	Par Value	Stocks	Transactions Week Ended Dec. 17 Sales	First	High	Low	Last	Change
6¾	45	2¾	.55	$5	Amer. Con. Oilfields	91,000	85	90	82	85	0
14½	4	7½	3	N.P.	Amer. Maracaibo	11,000	3	3½	3	3¼	+ ½
8¾	5⅜	9¾	6¾	$10	Arkansas Nat. Gas	.....	.....	.....	.....	.....	.....
20¾	14½	20½	15½	N.P.	Beacon Oil	.....	.....	.....	.....	.....	.....
85¼	60	49	20½	N.P.	British American	.....	.....	.....	.....	.....	.....
28⅜	9¼	28¼	14⅜	25c	Carib Syndicate(new)	4,300	19	20½	18	18	— 1
...	...	26	16½	...	do ctfs. of deposit	.....	.....	.....	.....	.....	.....
51	37½	58¾	40¼	$20	Cities Service	24,000	51⅞	52¾	51⅞	52⅜	+ ⅜
92½	82⅜	95⅜	87	100	do pfd.	3,200	94¾	95⅜	94¾	94⅞	0
8⅜	7⅜	8⅞	7⅜	10	do pfd. B	900	8¾	8⅞	8¾	8⅞	+ ⅛
25¼	19	29¼	22½	10	do banker's shares	.....	.....	.....	.....	.....	.....
3½	1⅜	3⅞	1¼	$1	Colombia Syndicate	7,000	1½	1⅝	1¼	1½	+ 1/16
10⅜	8⅛	9½	6⅜	10	Consolidated Royal	.....	.....	.....	.....	.....	.....
16	10	14⅞	9⅞	N.P.	Creole Syndicate	25,000	9⅞	10	9⅞	10	0
7⅜	1⅜	3	.50	N.P.	Crown Central	3,800	76	76	50	65	—11
8½	½	12	4	...	Darby Petroleum	100	8½	8½	8½	8½	0
....	....	11½	5	...	do trust ctfs.	.....	.....	.....	.....	.....	.....
4	1¾	2½	1¼	N.P.	Derby Oil & Refining	1,300	74	74	74	74	—76
19	13	16¾	6⅜	N.P.	do pfd.	100	6⅛	6⅛	6⅛	6	— ⅞
7½	2½	3¾	1	N.P.	Gibson Oil	5,200	2⅛	2⅛	1⅞	2	— 1/16
2	.63	1⅜	.40	N.P.	Gilliland ctfs.	2,000	60	60	60	60	+ 9
98	82	105⅞	86¼	$25	Gulf Oil Corp.	8,200	101½	104½	104	104	+ 4
3⅜	1	2¼	1⅛	N.P.	Kirby Petroleum	200	1½	1½	1½	1½	0
12¾	5¾	10⅞	5⅛	N.P.	Leonard Oil & Dev.	3,900	5½	5¾	5⅛	5½	— ½
27	20	27½	20	N.P.	Lion Oil & Refg.	500	20½	21	20½	21	+ ¾
46	31	59⅜	37	$25	Lone Star Gas	1,800	55¼	55¾	54	54¼	— ⅝
2¾	2	2⅞	.87	1	Magdalena Synd.	2,100	1½	1⅝	1⅜	1½	— 1/16
5½	1⅜	3	1½	10	Mexican-Panuco	.....	.....	.....	.....	.....	.....
1¾	1¼	1½	1	1	Mountain & Gulf	100	1⅜	1⅜	1⅜	1⅜	+ 1/16
26	23	26⅞	22¾	10	Mountain Producers	9,800	26⅜	26⅜	25⅜	25¾	— ⅛
6¾	5	5⅞	4⅝	5	New Bradford	100	5⅛	5⅛	5⅛	5⅛	0
11¾	2	6¼	4	10	New England Fuel	.....	.....	.....	.....	.....	.....
17	9⅜	16	9¼	1	New Mex. & Ariz.	500	10	10	10	10	0
17	8	13¼	9	25	New York Oil	200	11⅜	11⅜	11⅜	11⅜	— ⅛
12⅛	8¾	12⅝	10	N.P.	North Cent. Texas	.....	.....	.....	.....	.....	.....
44¾	33	....	....	$25	Ohio Fuel Corp.	.....	.....	.....	.....	.....	.....
33	28½	27½	21¼	...	Okla. Nat. Gas ctfs.	.....	.....	.....	.....	.....	.....
10⅛	5⅞	9⅜	1¾	N.P.	Pandem	28,500	4⅞	5¼	4⅝	5¼	— ⅝
12¾	11¾	12⅛	7	N.P.	Pantepec Oil	9,800	9⅜	9⅜	10¼	10¼	+ ¾
2¾	.20	.37	.25	N.P.	Peer Oil Corp.	.....	.....	.....	.....	.....	.....
22¾	12	13½	5⅛	$10	Pennok Oil	1,800	6	6	5½	5⅝	+ ½
38	14⅜	24⅜	7	25	Red Bank Oil	2,400	12⅛	14	12⅛	14	+ 2
30¼	12	15½	2	N.P.	Reiter-Foster	2,700	6⅞	6⅞	6½	6¾	— ¼
27½	22	29⅜	15	$25	Richfield Oil	9,100	25⅝	29⅜	25⅝	27⅞	+ 2⅞
7½	4⅛	7	4½	N.P.	Ryan Consolidated	2,000	5¼	6	5¼	5⅝	+ 1
10	7½	8	6	$10	Salt Creek Cons.	900	6⅝	6⅝	6⅜	6⅜	— ⅛
36	26⅞	33	27¼	10	Salt Creek Prod.	11,300	32¾	32¾	32¼	32½	— ¼
4⅜	1⅜	7	2	5	Savoy Oil	.....	.....	.....	.....	.....	.....
27	7⅜	26½	17	10	Tidal Osage	1,300	21	21	20¾	21	0
25¾	7⅜	23¾	15	10	do non-voting	3,500	18⅛	19	18⅛	19	— ¾
...	...	89	63½	100	Transcontinental pfd.	900	88½	90	88½	90	+ 3
3	4⅛	7⅜	4¼	5	Venezuelan Petrol.	700	4¾	4⅞	4⅝	4⅝	— ⅛
31½	22	32⅜	20⅜	N.P.	Wilcox Oil & Gas	2,000	20¾	20⅞	19½	20⅞	— ⅛
9½	4⅜	8	4¾	$1	Woodley Petroleum	300	5⅜	6⅛	5⅜	6⅛	— ⅜

*New High †New Low xEx Dividend

Bulk Stations

Designed—
Installed—
Financed—

YOU don't need to go to several different manufacturers for equipment to build your new bulk station and end up by having no one concern responsible for its satisfactory operation.

Graver will design your station—build it—guarantee it—finance it. The station itself will be exactly as you want it and the terms of payment arranged to suit your convenience.

GRAVER Corporation Founded 1857

EAST CHICAGO, INDIANA

NEW YORK Grand Cent. Term. | CHICAGO America Fore Bldg. | TULSA Atlas Life Bldg. | HOUSTON West Building

Send the coupon for complete information.

Quote us on installing.....stations,.....gallons capacity,.....tanks,

{Horizontal above ground. / Vertical underground.} .....products to be handled.

We would like financing plan to extend.....months.

Name of Company.....

Address.....

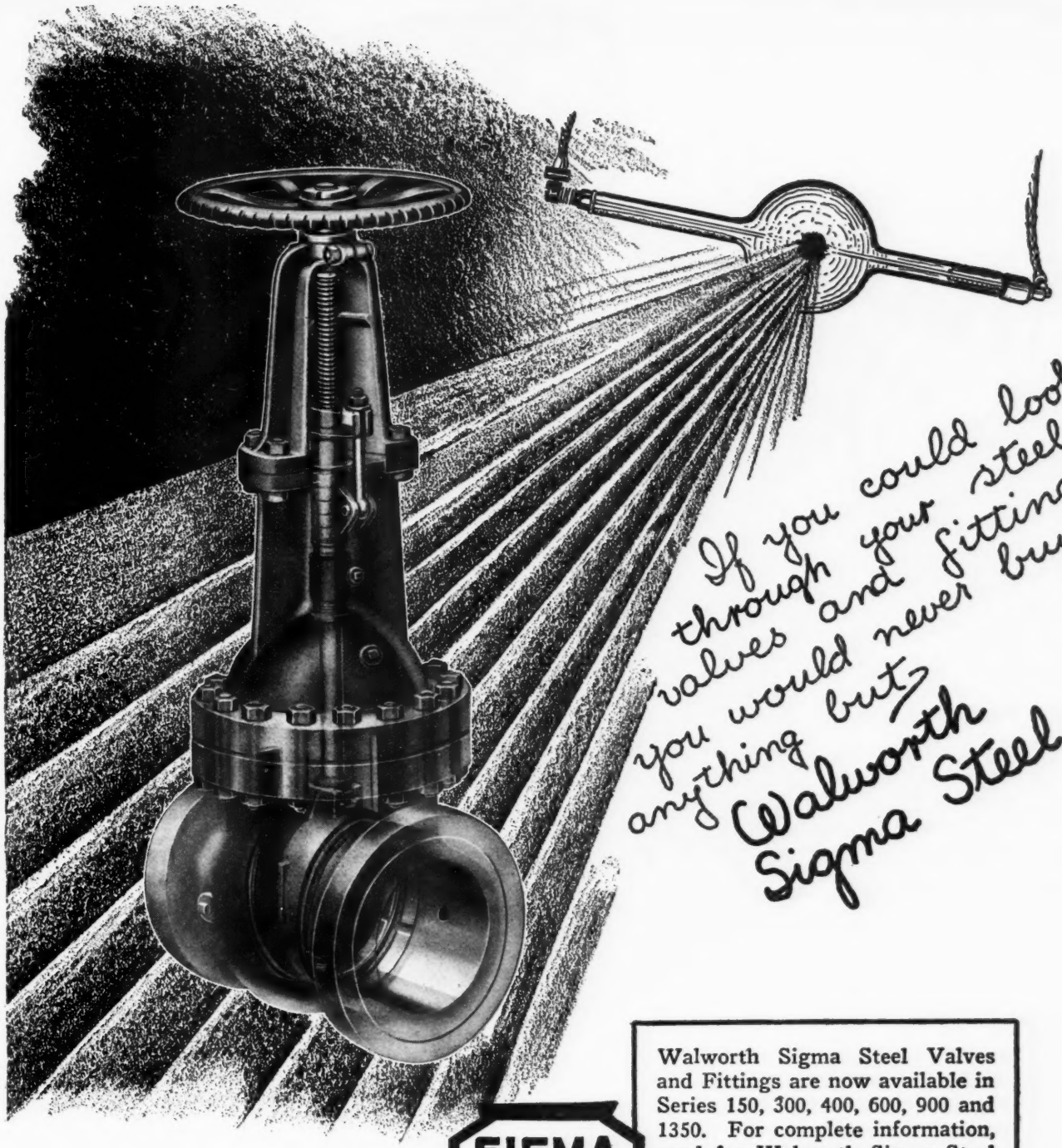
City.....State.....

By.....

Entered as second class matter January 17, 1910 at Cleveland, O., post office under act of March 3, 1879, by National Petroleum Publishing Co.

Compliments of the Season

TRANSCONTINENTAL OIL CO.
Producers, Refiners, and Marketers of Marathon Quality Products
GENERAL OFFICES *Ritz Building* TULSA, OKLA.



If you could look through your steel valves and fittings you would never buy anything but Walworth Sigma Steel

Walworth Sigma Steel Valves and Fittings are now available in Series 150, 300, 400, 600, 900 and 1350. For complete information, send for Walworth Sigma Steel Bulletins Nos. 1 to 12.

SIGMA HAS SWEPT SUSPICION FROM STEEL

TRADE WZ MARK

WALWORTH

Walworth Company, General Sales Offices: 51 East 42nd St., New York

Plants at Boston, Mass.; Kewanee, Ill.; Greensburg, Pa., and Attalla, Ala.

Distributors in Principal Cities of the World

Walworth Co., Limited, 10 Cathcart St., Montreal, P. Q.

Walworth International Co., New York, Foreign Representative

WHEELING Steel Drums are built to meet the shipping emergency. From ore to iron, iron to steel, steel to the heavy sheets of which Wheeling Drums are formed, all processes are under Wheeling supervision within a single organization. This means complete delivery insurance for your products —an extra margin of safety in steel barrels that insures economy and shipping satisfaction for both shipper and consignee.

WHEELING STEEL CORPORATION, WHEELING, W. VA.

WHEELING
STEEL DRUMS

Found!

The Other Half of Your Business!

Sell Staso

The All-Weather Transmission Lubricant!

—*because* STASO is *part* of your business—gas, oil and STASO are a "natural."

—*because* STASO boosts your sales summer and winter.

—*because* STASO increases profits and good will.

—*because* STASO cultivates new customers for all departments of your business.

—*because* STASO has a ready market among car dealers, garages and repair shops.

—*because* STASO gives you a margin of profit that is *worth while.*

—*because* STASO is sold and endorsed by representative jobbers.

—*because* STASO is used by most automobile manufacturers.

—*because* STASO is the kind of fluid lubricant that automotive instruction books recommend.

—*because* STASO is a fluid lubricant—*not a grease.*

—*because* STASO has sufficient body to stop the spinning of the clutch plate and gears.

—*because* STASO advertising will create new customers for you.

STASO
ALL-WEATHER TRANSMISSION LUBRICANT

Is sold to you under a positive guarantee and we stand back of your unqualified guarantee to your customers. Our service to you does not stop with the completion of the sale. We lend you every possible assistance in the form of dealer aids, merchandising features, etc.

Investigate today!

STASO
SERVICE

Keystone Oil & Manufacturing Division
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WELDED PRESSURE VESSELS

Restricted in size only by transportation limits—wall thickness up to 3½" and heavier.

P. I.W. welded pressure vessels take care of the exacting demands of the Oil Industry for cracking units that will withstand terrific strains.

Because of the obvious importance of the weld (which must properly fuse and form a perfect bond with the shell) it was but natural that P. I.W. should develop an electric welding method which is so far advanced over ordinary commercial welding methods as to take it beyond the realm of competition.

The resources and experience of an organization that has specialized in steel plate construction for over thirty-five years have been concentrated on producing welded pressure vessels that have set up new standards of strength and which will endure heretofore unheard of pressures continuously sustained.

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"Pennsylvania" Tank Cars
Oil Refinery Equipment
Tanks up to 120,000 Bbls. capacity
Agitators
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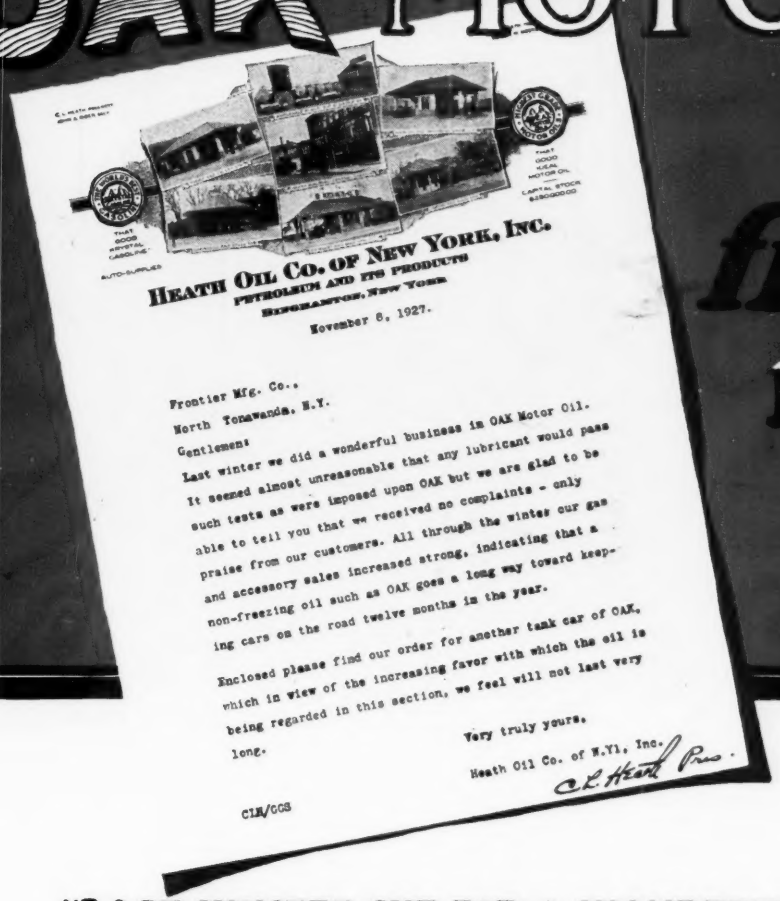
OAK MOTOR OIL

flows freely at 10° 20° 30° below zero



HEATH OIL CO. OF NEW YORK, INC.
PETROLEUM AND ITS PRODUCTS
SUSQUEHANNA, NEW YORK

November 8, 1927.

Frontier Mfg. Co.,
North Tonawanda, N.Y.

Gentlemen:

Last winter we did a wonderful business in OAK Motor Oil. It seemed almost unreasonable that any lubricant would pass such tests as were imposed upon OAK but we are glad to be able to tell you that we received no complaints - only praise from our customers. All through the winter our gas and accessory sales increased strong, indicating that a non-freezing oil such as OAK goes a long way toward keeping cars on the road twelve months in the year.

Enclosed please find our order for another tank car of OAK, which in view of the increasing favor with which the oil is being regarded in this section, we feel will not last very long.

Very truly yours,
Heath Oil Co. of N.Y., Inc.
C.L. Heath Pres.

CLH/CGS

"LAST WINTER WE DID A WONDERFUL BUSINESS IN OAK MOTOR OIL"

THAT is the way the Health Oil Company begins their letter reproduced above, and they continue—

"Only Praise From Our Customers"

OAK satisfies customers and dealers alike. It is positively unaffected by zero temperatures,—can be drawn through a hollow glass tube by suction at 30° below zero. That means perfect lubrication for a motor from its first revolution—winter and summer.

All Through The Winter Our Gas and Accessory Sales Increased"

OAK enables motors to render summer service in winter, and thus keeps them on the road. The dealer who sells OAK performs a service to motorists that brings with it the sale of gasoline and accessories. Build your winter business with OAK.

What Is Oak Motor Oil?

OAK is the pioneer in the new era of efficient motor lubrication. It is a paraffin base oil of low viscosity and high adhesiveness. It lubricates all parts of a motor, instantly and constantly, at all temperatures—and leaves no carbon.

Get An Oak Contract NOW!

The big OAK selling season is here. OAK dealers and distributors will pyramid their profits. There's still territory left—get yours now.

Send coupon for free booklet "The Inside Story of a Gasoline Motor" the truth about lubrication, published for the first time by an oil company.

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IN CANADA—Frontier Manufacturing Company of Canada, Ltd., No. 2 Primrose Ave., TORONTO, ONT.

OAK MOTOR OIL

Frontier Manufacturing Co.,
North Tonawanda, N. Y. Dept. 18

☐ Please send me without obligation, your free booklet *"The Inside Story of a Gasoline Motor."*

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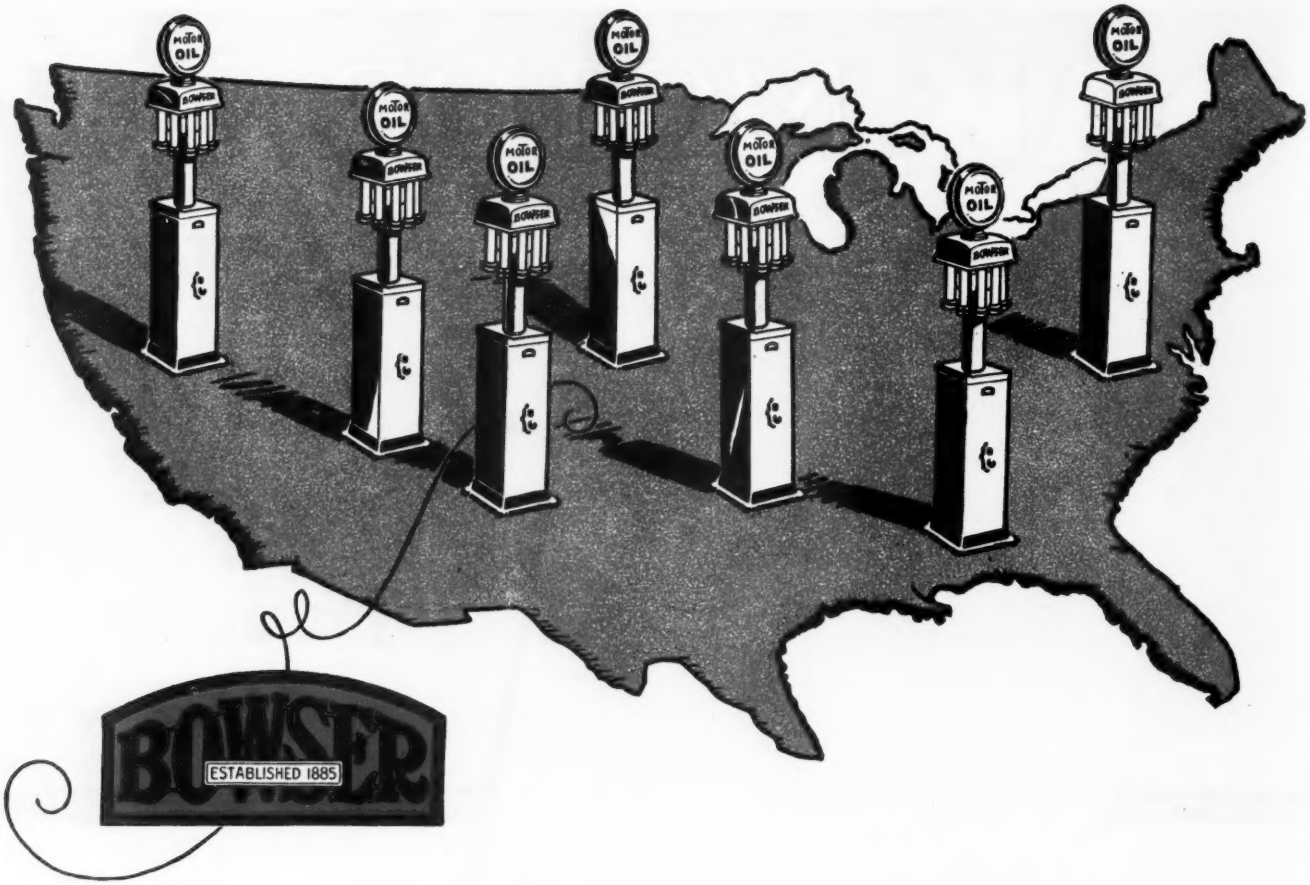
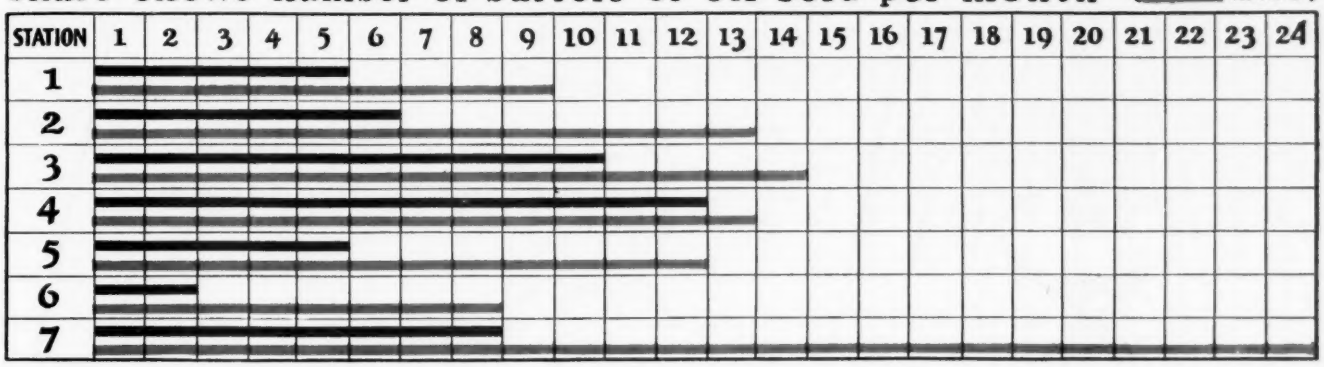


These seven stations sell twice as much oil, now that they are using Oil Fountains, as they did before they put in these Fountains!

Here are the facts–

This chart shows the monthly oil sales of the seven stations—the black lines indicating sales *before* Fountains were installed and the red lines the sales *after* the Fountain was used.

Chart shows number of barrels of oil sold per month (BEFORE / AFTER)



The oils sold by these seven stations are:

Cities Service
Havoline
Humble
Iso-vis
Mobiloil
Pennzoil
Polarine
Quaker State
Tiolene
Veedol

The 7 stations also report an average increase of 34% in gasoline sales during the period they've had their Fountains. Evidently, the Fountain draws trade.

It is because of just such facts as the above that we say: The Fountain will pay its own way, in permanently increased profits. Send for special Spring installation offer—address Dept. 19.

S.F. BOWSER & COMPANY, Inc.

Gasoline and Oil Service Equipment

FORT WAYNE, INDIANA, U.S.A.

TORONTO · LONDON · PARIS · BERLIN · SYDNEY

May the CHRISTMAS SPIRIT of FELLOWSHIP and GOODWILL make this a happy season for every person touched by the oil industry and may this SPIRIT spread its blessings through all the coming year ♣ Wm. S. Barnickel and Co.
Tret-O-lite
LIQUID
GROSS
TARE
NET
515 TO 445
50 GALS.
WM S. BARNICKEL & CO.
ST. LOUIS
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APRIL 24
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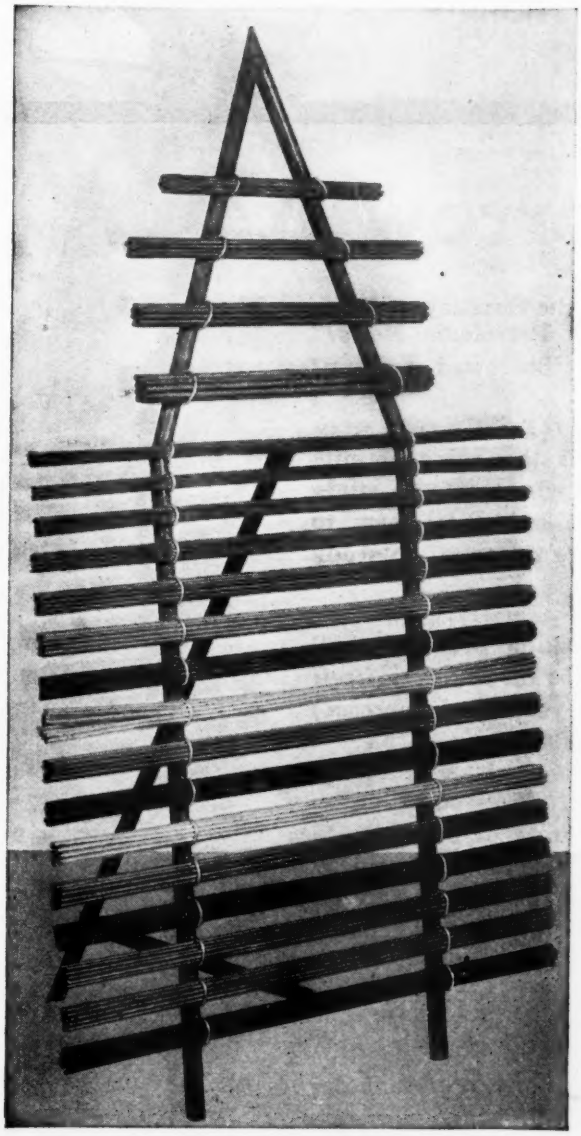
Better rod for better welds



A Rod for Every Welding Need
Display rack showing wide assortment of Oxweld welding rods.

YOU CAN'T make angel cake from corn meal. Corn meal is fine for corn cakes, but it just isn't the kind of stuff for making angel cake. You need finer materials.

It is much the same story on welding rods. If you want the best welded joints, you can't use baling wire—you must use the best welding rods. That has been proved time and again by exhaustive engineering and field tests.

Oxweld branded rods are the best because Oxweld cannot afford to sel anything else. Oxweld's business depends on the success of the oxy-acetylene process, and welding rods materially contribute to the success of welding.

Oxweld

WELDING AND CUTTING APPARATUS

OXWELD ACETYLENE COMPANY
Unit of Union Carbide and Carbon Corporation

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Thompson Avenue and Orton Street

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STOCKS
IN 39 CITIES

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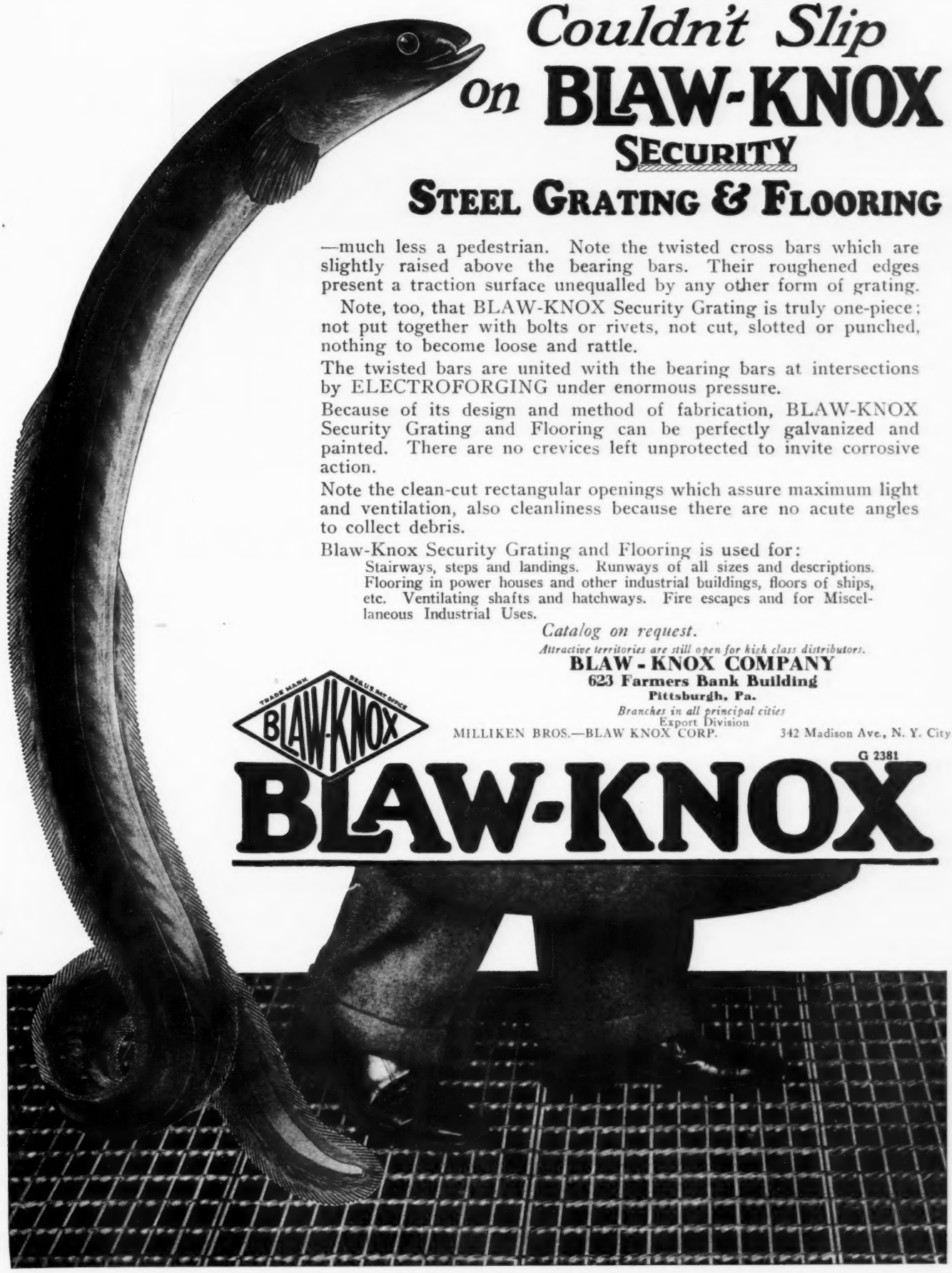
—An eel Couldn't Slip on BLAW-KNOX SECURITY STEEL GRATING & FLOORING



—much less a pedestrian. Note the twisted cross bars which are slightly raised above the bearing bars. Their roughened edges present a traction surface unequalled by any other form of grating.

Note, too, that BLAW-KNOX Security Grating is truly one-piece; not put together with bolts or rivets, not cut, slotted or punched, nothing to become loose and rattle.

The twisted bars are united with the bearing bars at intersections by ELECTROFORGING under enormous pressure.

Because of its design and method of fabrication, BLAW-KNOX Security Grating and Flooring can be perfectly galvanized and painted. There are no crevices left unprotected to invite corrosive action.

Note the clean-cut rectangular openings which assure maximum light and ventilation, also cleanliness because there are no acute angles to collect debris.

Blaw-Knox Security Grating and Flooring is used for:

Stairways, steps and landings. Runways of all sizes and descriptions. Flooring in power houses and other industrial buildings, floors of ships, etc. Ventilating shafts and hatchways. Fire escapes and for Miscellaneous Industrial Uses.

Catalog on request.

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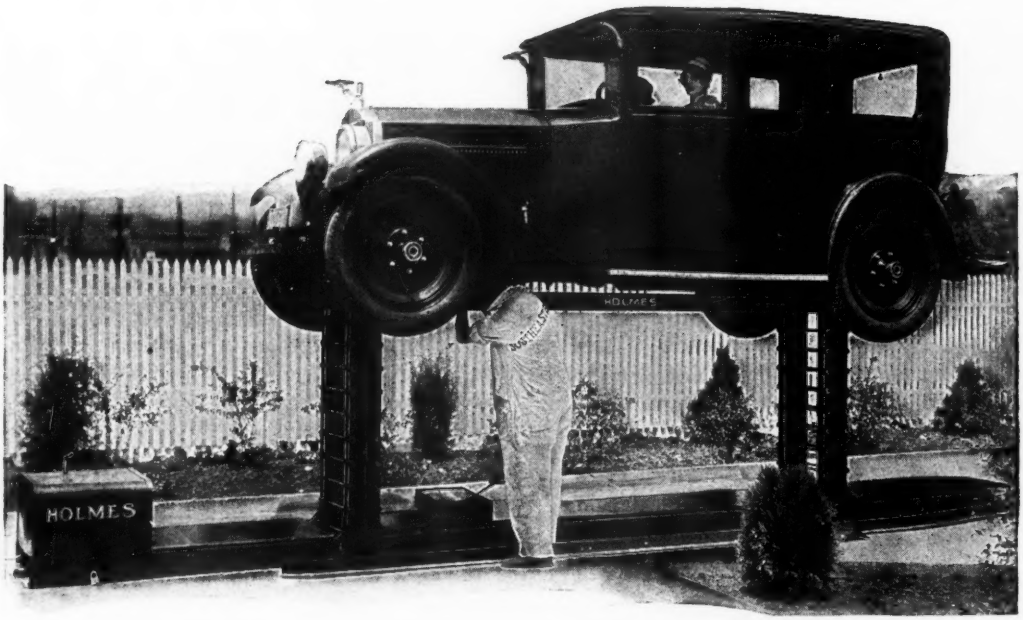
SPEED! PROFITS!



HOLMES Universal Auto-Lift

In the design and construction of the Holmes Universal Auto-Lift every phase of filling station service has been considered. Every possible feature for speed and convenience of operation has been provided, and every obstruction eliminated.

Cars are raised by front and rear axles, leaving all wheels and steering gear free for lubrication, inspection or adjustment. Every working point on the car is instantly accessible for lubrication, washing, polishing or any service operation. Crank case, clutch, differential and transmission can be drained without interference, and brakes, shackle bolts, universal joints, springs —all the hard-to-get-at places are now where you can reach them best for instant service at a remarkable saving in time and labor.

Investigate today the opportunities for profit with the Holmes Universal Auto-Lift—the convenience it provides—the time it saves—the profit it makes and the new business it attracts.

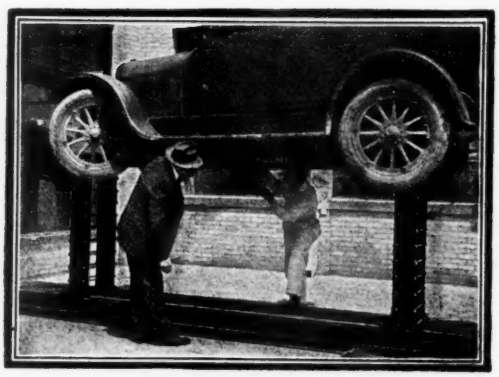
Write for descriptive folder.

ERNEST HOLMES COMPANY

CHATTANOOGA TENNESSEE

NO INSTALLATION COST

The Holmes is shipped in one complete unit and is operated by its own self-contained motor. No pits to dig, no posts or lifting arms to obstruct, and no plumbing, air connections, oil reservoirs or packing glands. You can have it operating in 30 minute's time.



The Holmes is absolutely rigid at all positions and cars are raised with a degree of safety and efficiency never before approached.

The THOUGHT is FATHER to the DEED

YOU have made another good year possible for us and again we are grateful.

And again, throughout 1928 as in 1927, we will express our appreciation by increased effort to serve you even more efficiently than in the past.

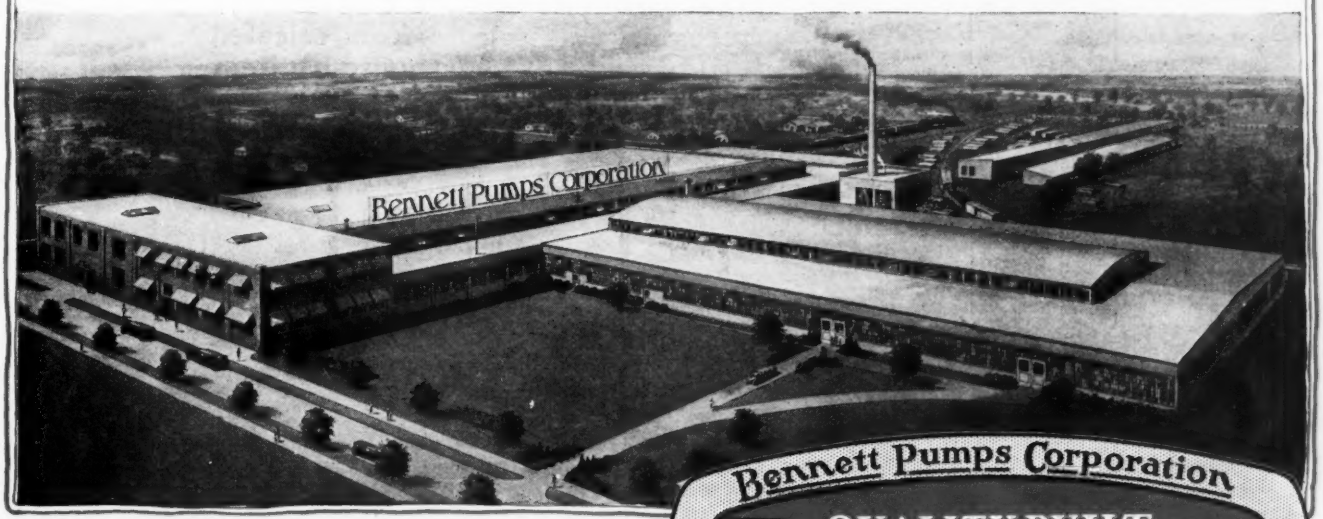
In doing this, conscientiously, with all the facilities and resources in our power, we hope to contribute directly to your prosperity throughout 1928.

May the New Year bring you friends and patrons who are as loyal to you as you have been to us.

Bennett Pumps Corporation

Muskegon, Michigan

Branch Offices and Warehouses — Coast to Coast



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QUALITY BUILT
Bennett
Oil and Grease Equipment
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"cream of the crude"
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Wherever their quality is known, Independent Bright Stocks are recognized as select---from selected crude and refined to the highest degree of perfection.

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We are also making a complete line of industrial and motor oils, and we would be glad to send you specifications and samples upon request.

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Fire	600-610
Cold	15-20
Viscosity at 210	150-160
Carbon Residue	Below 2%
Emulsion	O. K.
Color	1-3/16 to 1-1/4 T. R.

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